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CONTAINING
A SYNOPSIS OF THE DALBERGIEÆ,
A TRIBE OF THE LEGUMINOSÆ.

BY
GEORGE BENTHAM, Esq., V.P.L.S.

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Synopsis of *Dalbergiæ*, a Tribe of Leguminosæ. By GEORGE
BENTHAM, Esq., V.P.L.S.

[Read June 2, 1859.]

WHEN, in the winter of 1836-37, at Vienna, I worked up the South American *Dalbergiæ* from such materials as I there found, I was induced to adopt to their fullest extent the prevailing ideas of the importance of the modifications of the fruit in the limitation of genera; for their evident constancy in the comparatively few species in which I could examine the flowers also, appeared to justify the great value attached to the characters derived from them. Since then, however, the great accession of specimens I have had at my disposal from the warmer regions of Asia, Africa, and America, where the trees and woody climbers constituting this tribe are equally abundant, has induced me considerably to modify my former opinions, and led me to what I conceive to be a fairer appreciation of the true value of these characters. As I have already had occasion to remark in my paper on *Clitoria*, read before the Society in 1857, the greater or less *degree* of development in different parts of the pod or its appendages, acquired during growth and maturation, which often makes a great difference in its external appearance, is of very little systematic value; whilst a tendency to development in one direction and not in another, or to produce appendages in one part rather than in another, often difficult to appreciate, is, on the contrary, remarkably constant in genera otherwise natural.

Different in appearance as are, for instance, the pods of *Drepanocarpus lunatus* and *Machærium villosum*, they are both formed, as it were, upon one plan, easily traced through the intermediate species, and the two genera are very unnaturally separated. On the other hand, a cursory glance at the pods of *Machærium* and *Tipuana* would suggest their generic identity, whilst a closer examination shows a considerable difference in the origin and formation of the winged appendage, and the distinctness of the two genera is confirmed by differences in the flower without any appearance of intermediate links; *Tipuana* being, in fact, much nearer to *Pterocarpus* than to *Machærium*. So also the degree to which the corky thickening of the pod is developed in certain cases makes a very great difference in the external appearance of the fruits of species which may be otherwise so closely allied that they cannot be generically separated; whilst the tendency to this corky development is observable only in certain genera, although it does not take place in all the species of those genera.

These considerations have obliged me to modify in many instances the circumscription and characters of the genera I proposed in my Vienna paper, and to reduce several of those which I considered as new, more especially those which I had founded on the fruit alone, without having seen the flower—always a very unsafe course, and particularly so among Leguminosæ. In one instance, indeed (that of the genus *Corytholobium*, which I had taken up from Martius's fruiting specimens and MS. notes, without either he or myself having seen the flowers), the plant turns out to be Polygalaceous. In a few other cases the flowering and fruiting specimens had been mismatched; a source of error very frequent in describing the tree-vegetation of the tropics. Traveling collectors have very seldom the opportunity of gathering specimens in both states from the same tree, and where these collectors are not very methodical and precise in the notes they take at the time of collecting, the memoranda attached to the loose fruits or flowers of their specimens in herbaria are not always to be depended on. Owing to the intricacy with which the branches of different trees and climbers are intermixed in tropical forests, fruits, flowers, and foliage, which the careless traveller fancies he has gathered from different branches of one tree, have belonged, in fact, to different trees; and mistakes are still more frequent when he picks up from the ground loose flowers or fruit, apparently fallen from the tree overhead. Moreover, I have occasionally met with convincing proofs that the memoranda attached to specimens had

not been made at the time of gathering, but added later—either in the course of drying, or at the time of packing up, when the recollection of the circumstances noted, of origin, habit, colour, &c., had become more or less dimmed or confused,—especially when a great variety of specimens had been gathered in one herborization.

Even now, whilst revising the same tribe after an interval of twenty-two years for the purpose of editing the Leguminosæ of Martius's 'Flora Brasiliensis,' although I have certainly had at my disposal a richer collection than had ever been gathered together in one place, and although I had in the meantime collected a considerable number of notes in the herbaria of Paris, Geneva, and others, still I have in many cases experienced much difficulty from the insufficiency of specimens, and many points remain involved in doubt and obscurity. As far, however, as my materials allowed, I have, in a forthcoming part of that 'Flora,' fully described all the Brazilian genera and species; an operation, which has obliged me to examine in detail all the species I could procure from the whole of tropical America, and to compare them carefully with the newest corresponding forms in tropical Africa and Asia. It then occurred to me that it might be interesting to the Linnean Society to communicate the result of that examination of such new or little-known genera and species as are not included in the Brazilian Flora, as well as to record a few general observations which the form and limits of that work prevented my entering into on that occasion. I have thus been led on to draw up a synopsis of the whole tribe, with short characters of all the species known to me, referring for more complete descriptions to the above-mentioned Brazilian Flora, or to other works quoted, for the published species, and entering into a few further details, only in the case of the non-Brazilian species here published as new.

The tribe of *Dalbergiæ* is on the whole a natural one, but, like all others of the Papilionaceous suborder, very difficult to define precisely. In general it is distinguished from *Phaseoleæ* by the arborescent or tall, woody, climbing stem, pinnate leaves, and indehiscent pod, and from the arborescent *Galegeæ* (*Robinia* and their allies), by the indehiscent pod, and, it has been said, also by the cotyledons which, during germination, are believed not to be developed into true seed-leaves, furnished with stomata. The latter character, however, if correct, is not available, and I cannot ascertain that it has been verified in a single species, and to the others there are occasional exceptions, each of which must be

judged of by a comparison of specific affinities. *Erythrina*, *Butea*, and some other *Phaseoleæ* are arborescent, and in *Butea* the pod is not always dehiscent, but the foliage is so characteristic of *Phaseoleæ*, that it is impossible to separate the genus from that tribe. So also *Apios tuberosa*, the *Clitorias* of the section *Ternatea*, *Galactia Elliottii*, and a few other *Phaseoleæ* have pinnate leaves, but their herbaceous twining stems, dehiscent pods, and specific affinities clearly point to their place in that tribe, and not among *Dalbergieæ*. In *Dalbergieæ*, again, there are one or two species in each of the genera *Lonchocarpus*, *Derris*, and *Platymiscium*, with only one pair of opposite leaflets at some distance below the terminal one, as in *Phaseoleæ*, but the pod is indehiscent and the specific affinities in each case, certainly those of *Dalbergieæ*. The small genus *Abrus* is an exceptional one which, besides its pinnate leaves, shows in some other respects an approach to the *Dalbergieæ*, but, upon the whole, it seems more nearly allied to *Phaseoleæ*, where its two-valved pod would technically place it. Between the arborescent *Galegeæ* and *Dalbergieæ* the line of demarcation is still more vague. From *Tephrosia*, *Coursetia*, and *Robinia* on the one side, to *Pongamia* and *Müllera* on the other, the genera *Gliricidia*, *Mundulia*, *Millettia*, *Derris*, and *Lonchocarpus* (with some smaller allied ones) form a gradual passage, the three first, with a more or less dehiscent pod, being perhaps best placed in the *Galegeæ*; the two last, in which it scarcely ever shows any tendency to split into the two valves, remaining in *Dalbergieæ*.

Several *Dalbergieous* genera are closely allied to corresponding ones among *Sophoreæ*, from which they are distinguished by the union of the stamens. The union, however, is not always so close as in the other tribes of synstemonous *Papilionaceæ*; the lower or carinal stamen is occasionally free, as well as the upper or vexillary ones, and in several genera the keel-petals only overlap each other on the outer edge without being united. In these respects, therefore, as well as in habit, and in the shorter and occasionally almost straight radicle, the *Dalbergieæ* constitute the passage from the preceding *Papilionaceæ* to the *Sophoreæ*, and, through them, an approach to the suborder *Cæsalpinieæ*.

The *Dalbergieæ* are all woody, and very few species remain low stunted shrubs; in a few, chiefly from the dry, hot regions of Africa and Southern India, some of the lateral or axillary branches, in conformity with a prevailing feature in the scrubby vegetation of those countries, are reduced to stout spines; but the great majority of species are hard-wooded trees, often of considerable size

and great beauty, or climbers of various degree, from the shrub or small tree with weak sarmentose branches, to the tall liane, twining up to the summits of the highest trees, or supporting themselves by their twisted petioles or hooked spinous stipules. In *Pterocarpus* and its nearest allied small genera, *Tipuana*, *Platypodium*, *Centrolobium*, and *Pæcilanthe*, in *Platymiscium*, and *Hymenolobium*, as well as in the *Geoffroyæ*, all the species are arborescent. In the great genera *Dalbergia*, *Machærium*, *Lonchocarpus*, and *Derris*, as in the small genera technically distinguished from them, trees and climbers are irregularly mixed, and in some cases the same species is described as erect or scandent according to circumstances, whether growing isolated in an exposed dry situation, or drawn up in a moist shady forest. This identity, however, of erect trees with climbers, of which we have vague notices supplied by collectors in tropical regions, in the case of various natural orders, has not yet been very satisfactorily made out, and requires further observation on the part of intelligent and experienced botanists who may chance to be resident in hot countries, and can examine these trees in different stations and at different ages and periods of growth, uninfluenced by the prevalent and very natural ambition to raise to as high a figure as possible the numerical list of the new species they discover.

The wood of the arborescent species, as in the case of most Leguminous trees, is always hard and durable, and often of great beauty. Many are considered of great value as timber-trees, and largely exported to Europe for furniture, as being elegantly veined and susceptible of a high polish. Of the principal varieties of rosewood imported into this country, the two best, from Rio Janeiro (or rather from the interior through Rio Janeiro), are certainly supplied by species of *Dalbergia*, and chiefly by the *D. nigra*; other qualities are derived from some species of *Machærium*. The Honduras and Martaban rosewoods appear also to be the produce of some species of this tribe, and the tropical African rosewood or lancewood is certainly that of *Pterocarpus erinaceus* or *P. echinatus*. In Allemaõ's enumeration of the best timber-trees of the forests around Rio Janeiro, no less than thirty-five out of ninety-nine are Leguminous, and among these, eleven are *Dalbergieous*, chiefly *Dalbergias* and *Machæriums*, known to the merchants of the country under the names of *Jacarandas*, *Cabiunas*, &c. *Machærium Schomburgkii* and others, *Dipteryx*, &c., in Guiana, *Centrolobium* in Venezuela, *Piscidia erythrina* in the West Indies, are among

the tropical American ones specially noted for their woods. The *Red Sandars* and *Ruby-woods* of India are the produce of species of *Pterocarpus*, the *Sissoo-wood*, of *Dalbergia Sissoo*; and there is probably not a single tree in the whole tribe, of which the wood might not be worked with considerable advantage.

Several species supply gum-resins, such as the *Kino* from *Pterocarpus erinaceus* or *echinatus* in Africa, and from *P. marsupium* and *santalinus* in India. Gum-dragon is said to be produced by *Pterocarpus indicus* in Asia, and in tropical America by *P. Draco*, and by a species of *Pterocarpus* on the Orinoco, of which I have only seen two pods in the Kew Museum, more like those of *P. indicus* than of any American species known to me. Very similar resinous products are attributed to *Ecastaphyllum monetarium*, *Drepanocarpus lunatus*, and some others.

The roots, bark, and fruits of several species are known to be highly astringent, narcotic, or poisonous. All the species of *Andira*, commonly known in South America under the name of *Angelim*, are there considered as powerful anthelmintics. The *Lonchocarpi*, allied in botanical characters to *Tephrosias*, include, like them, several species used for poisoning fish; so also is the closely connected *Piscidia erythrina*. The fruits of several species, on the other hand, are much eaten in some countries, though we have occasional hints of their deleterious qualities, and they are probably never very palatable. Those especially noted as articles of food for the natives are *Pterocarpus esculentus*, and the similarly corky-fruited species or varieties of *Ecastaphyllum* in tropical Africa, the *Geoffroya superba* in North Brazil and Venezuela, the *G. spinosa* about Carthagera, and it is said also a species of *Dipteryx* known as *Almendron* in Antioquia. All the *Dipteryx* fruits or seeds are, however, more used under the name of *Tonga beans* or *Cumaroo* for scenting snuff or for their oil, one of them supplying the *Eboe* oil of the Mosquito country. The fruits of the *Pterodon* of South Brazil are still more replete with an oil which is there said to have powerful medical properties. The *Poonga* or *Kurunji* oil of India is the produce of *Pongamia glabra*. But, whether for food or for medical purposes, care is generally recommended in the use of all fruits and seeds of this tribe on account of their narcotic or intoxicating qualities, a principle which prevails more or less in the tribes nearest allied, especially in the arborescent *Galegeæ* and many *Phaseoleæ*, in which we find, in the seeds of closely allied species, important articles of food and virulent poisons.

Even the common *Phaseolus vulgaris* seeds, or *haricots*, are apt to be deleterious (and fortunately at the same time disagreeable to the taste) if stewed without throwing away the first water.

The geographical distribution of *Dalbergiæ* is somewhat affected by their uniformly woody habit, requiring years before they attain the reproductive age; for any isolated stragglers are, on that account, more exposed than the shorter-lived races to the chances which prevent their permanent establishment in a new locality, and the progress of their species is thus continually checked. They include none of those weeds of cultivation which everywhere follow man in his migrations. Valuable and ornamental as many of them are, very few appear to be ever cultivated or planted. Very few again are sufficiently maritime to admit of their being accidentally carried across oceans. An adventitious species is therefore of very rare occurrence, and the great majority have but a very limited area. There is thus not a single species common to Asia and America. Only five American species, *Ecastaphyllum Brownei* and *E. monetarium*, *Drepanocarpus lunatus*, *Lonchocarpus sericeus*, and *Andira inermis* have spread over to the opposite coast of Africa, and one, probably of African origin (*Pterocarpus esculentus*), has also been received from Cayenne. Among the Asiatic species one only, *Derris uliginosa*, extends across to Western Africa, and the same species with two others only, *Pongamia glabra* and (perhaps) *Derris scandens*, reach eastward as far as tropical Australia. Out of seventy-three Asiatic species, six only are common to the Peninsula and the Archipelago, two more extending from Ceylon to the Archipelago; out of twenty African species, two, or perhaps three, are known to be common to the eastern and western sides, and out of 200 American species, five only stretch from southern or even central Brazil to the West Indies or Central America.

The generic distribution is somewhat different. Regarded in this light, we must take natural genera only, those which have general differences traceable in their flowers or other organs, and not determined by the form of the pod, uniting *Ecastaphyllum* with *Dalbergia*, *Drepanocarpus* with *Machærium*, *Lonchocarpus* with *Pongamia*, *Piscidia* and *Müllera* with *Derris*, *Andira* with *Geoffroya*, and *Pterodon* with *Dipteryx*. We shall then find the two largest genera and one smaller one common to three continents. *Derris* (or *Pongamia*), thus extended to eighty-four species, has thirty-two Asiatic, nine African (including one from Asia and one from America), and forty-five American species, the *Derris* form prevailing in Asia, but found also in America; whilst the *Loncho-*

carpus form, which prevails in America, is the only one in Africa, and is scarcely represented in Asia by *Pongamia glabra*. *Dalbergia*, with sixty-nine species, has thirty-seven Asiatic species, ten African (of which two are also in America), and twenty-four American species, the different groups not affecting any particular geographical area. *Pterocarpus*, with fifteen species, has three Asiatic, five African, and seven American species, those only with stipitate pods found in Asia, the sessile-podded prevailing in America, and the two forms distributed in Africa. Of the remaining genera, the two largest, *Machaerium* with sixty-four species, and *Geoffroya* (including *Andira*), with nineteen species, are American, with two species of the former and one of the latter extending also into Africa. Seven more are exclusively American, viz., *Platymiscium* with thirteen species, *Dipteryx* with twelve, *Cyclolobium* with four, *Tipuana*, *Centrolobium*, and *Pæcilanthe* with three each, and *Platypodium* with only two. There remain three isolated species, of which *Euchresta* is Asiatic, *Ostryocarpus* African, and *Hymenolobium* American. Among the doubtful *Dalbergiæ* known to me, which do not appear referable to any of the described genera, but which, from the imperfection of the specimens, I am unable to determine, there are—one Asiatic, two African, and two American species.

Considering now the classification of *Dalbergiæ*, it will be found that the 286 species here described have (in so far as previously known) been distributed by various authors into above forty genera, now reduced to twenty-three, which appear to be tolerably well defined, although, to make them really natural, it would have required to cut them down, as above mentioned, to fifteen. It is not, however, so easy to determine the linear or relative arrangement of these genera. The best which has suggested itself to me is their distribution into three groups: the *Pterocarpeæ*, with dry fruits and the leaflets mostly alternate along the petiole; the *Lonchocarpeæ*, with dry fruits and the leaflets more strictly opposite; and the *Geoffroyeæ*, with a fruit usually drupaceous, and a single pendulous seed. The first of these, the *Pterocarpeæ*, may be considered as the more genuine representatives of the tribe; the fruit is always strictly indehiscent, usually hardened round the seed, which exactly fills the cavity it occupies, and almost always samaroid, that is, attenuated above or below the seed, or both, or all round, into a thin edge or wing. In the flower, it may be observed that the vexillum is never appendiculate or callous at the base, the wings are always free from the keel, the keel-petals are usually, but not quite always, shortly united at the outer edge;

the staminal tube is always split to the base on the upper side, and sometimes also on the lower side; the ovary often contains but a single ovule, and seldom more than four. The character derived from the foliage is tolerably constant; a very few species may be, however, occasionally found with the leaflets nearly opposite, and, in perhaps a majority of cases, one or two of the lowest pair of each leaf may be opposite, or nearly so, but always with the upper or intermediate ones alternate. There are also a few species (*Dalbergia Amerimnum*, *Ecastaphyllum Brownei*, and the four *Cyclolobiums*), in which the leaves are reduced to the terminal leaflet; the affinities of these must be judged of by other characters.

The second subtribe, the *Lonchocarpeæ*, form the approach to the arborescent *Galegeæ*; the fruit, always dry and usually flat, is nearly of the same consistence throughout, not specially hardened round the seeds, although often more or less contracted between them, so as, when not flat, to become torulose or moniliform, and when very flat, showing occasionally (but very rarely) a slight tendency to split, although never, so far as I have seen, really opening in two valves. The flowers afford no absolutely constant character, but in the majority of species the keel-petals are strictly united along the outer edge from the middle upwards, the wings often adhere laterally just above the claw to the keel, the vexillum has occasionally two calli, or the two edges folded in at the base of the lamina. The upper or vexillary stamen in *Lonchocarpus*, *Derris*, and *Piscidia*, is very shortly free at the base, then united the greater part of its length with the others into a complete tube, which splits open only when forced by the swelling of the ovary: an arrangement common in *Phaseoleæ* and some *Galegeæ*, but not observed in any *Dalbergiææ*, except these three genera. The ovules are often numerous. The character derived from the foliage is more constant: the leaflets are always strictly opposite, excepting here and there in a luxuriant side branch, where a tendency may be occasionally observed to break out into a slightly alternating arrangement. Stipellæ occur occasionally, but not frequently. In a very few species the leaflets are reduced to three, and in one, *Lonchocarpus*, they are solitary. In *Platymiscium* the leaves as well as the leaflets are opposite, which only occurs in the whole family of Leguminosæ in this genus, in some species of *Dipteryx*, and in a few genera, chiefly Australian, of *Podalyriææ*, and *Genisteæ*. In inflorescence, *Lonchocarpus* and its nearest allied genera have also a peculiarity which brings them still more in connexion with

Galegeæ and *Phaseoleæ*: the pedicels are usually clustered two or more together in the axil of the same bract; when they are more than two, the axis of the cluster often forms a thickened gland-like node, or lengthens into the rachis of a very short lateral branch.

The third subtribe, the *Geoffroyeæ*, is technically characterized by the fruit, which, in most cases, is a real drupe. It is said by some to be two-valved. In the few species in which I have seen it ripe (one *Geoffroya*, three *Andiras*, four species of *Dipteryx*, and two of *Pterodon*) the endocarp showed no more signs of splitting than do the stones of almonds or cherries in their ordinary state, but, like these, it is probable that the stones of the *Geoffroyeæ* may open in germination along the sutures; a circumstance, which would not bring them under dehiscent fruits properly so-called. The sarcocarp in most *Geoffroyeæ* clings hard to the stone, and most probably rots away in germination, but in *Pterodon* it appears to fall off in two valves, leaving the flat and thin but woody putamen still adhering to the specimens, so as to have been occasionally described as the whole fruit. When in flower, the *Geoffroyeæ*, as a whole, have little to distinguish them absolutely from other *Dalbergieæ*, although each genus has characters of its own which may be traced in the flower as well as in the fruit. The foliage is variable, though always pinnate; the keel-petals free, or very slightly cohering at the top; the staminal tube split open on the upper side, but never on the lower side; the ovary short, usually thick, with never more than four ovules, of which only one ripens into a pendulous seed, and in *Dipteryx* and *Pterodon* even the ovule is solitary.

Before proceeding with the technical enumeration, I subjoin a few general observations on individual genera.

DALBERGIA and ECASTAPHYLLUM.

These two closely connected genera are readily distinguished by their anthers, which are not, as in all other *Dalbergieæ*, versatile with parallel cells opening longitudinally, but small, erect, and didymous; their cells placed back to back, opening in diverging or divaricate slits, which are either so very short as to be reduced to oblong terminal pores, or are more or less continued to the base of the anther; in the former case the two cells are often quite distinct at the top, projecting considerably above the connectivum; or when the cells open longitudinally they are usually contiguous at the apex, spreading widely at the base. In some semidiœcious species the two forms of anthers are represented in the two sexes.

In other respects, also, the two genera form a natural group; the leaflets are either all alternate, or rarely a few pair in each leaf may be found opposite or nearly so, and always without stipellæ; in one *Dalbergia* and one *Ecastaphyllum* the leaf is reduced to a single large terminal leaflet. The inflorescence is more decidedly cymose than in any other genus of the tribe, and perhaps of the whole order. The primary branches of the panicle are usually alternate, the next ramifications are dichotomous, and the ultimate branchlets bear several flowers, sessile or pedicellate, arranged singly along their upper or inner side only, with a small bract under each pedicel, and two bracteoles under the calyx. Sometimes the inflorescence is dichotomous from the base, with innumerable small flowers forming a perfect flat cyme. Sometimes it is only in the last ramifications that the cymose arrangement can be traced, or the whole is reduced to one or to very few racemes, but these are then always unilateral. A similar arrangement, although much less decided, may be observed in several *Machæria*, but is quite lost in *Pterocarpus*, *Lonchocarpus*, and their allies. The flowers in *Dalbergia* and *Ecastaphyllum* are white, straw-coloured, or purple-red, never, as far as I can learn, really yellow, and they are generally the smallest in the tribe; in some species not above one line long, generally from that to three lines, and only very rarely five, or even near six lines long.

The pod was the character formerly relied on chiefly, if not solely, for the separation of *Dalbergia* from other Leguminosæ—an oblong or linear thin flat indehiscent pod with one flat seed in the centre, in a cavity not much bigger than itself, or, if more than one seed, then always at some distance from each other, and each in its own cavity. The consequence of such a limitation was the including in *Dalbergia* species very different in foliage, inflorescence, and flowers, now referred to *Derris* and *Lonchocarpus*, and would now necessitate the adding to it *Platymiscium*, *Leptolobium*, and many other widely distant genera which have the same pod, and the exclusion from it not only of *Ecastaphyllum*, but also of those species universally retained in it which constitute my section *Selenolobium*. I have now, however, as already observed, very much restricted the generic importance I would attach to modifications of the pod, and were I now first grouping the species before me, I should certainly have proposed the uniting them all under *Dalbergia*, divided into three artificial sections:—*Dalbergia*, with a straight, long, thin pod; *Selenolobium*, in which it is thicker and lunate or reniform; and *Ecastaphyllum*, where it is orbicular

or nearly so, with a great tendency to a corky thickening. The latter group has, however, been so long established as a substantive genus, and is so well known under that name, that it may be more convenient so to retain it, although artificial.

There are, however, several small genera proposed at different times, which I have been obliged to reduce to *Dalbergia*, although I may have adopted them in my Vienna memoir, not having then perfect specimens in flower and fruit of the true Asiatic *Dalbergias* for comparison. *Triptolemea*, Mart., with its compact cymes of minute flowers, looked distinct enough from *D. lanceolaria*, but is certainly inseparable from *D. rimosa*. *Miscolobium*, Vog., with its smooth unveined pod, has its counterpart in several of the African and Asiatic *Sissoas* and *Dalbergarias*, among which the passage into the forms exemplified in the American *D. variabilis* and the Asiatic *D. rimosa* is very gradual. *Amerinum*, Sw., has the inflorescence and flowers of *D. nigra* and others among American species, or of *D. latifolia* and its allies among Asiatic ones; and the pod, although sometimes rather more thickened, is often quite as thin as in the majority of *Dalbergias*, and similarly reticulated over the seeds. *Podospermum*, Hochst., and *Endospermum*, Blume, are both common forms among true *Dalbergias*.

In the distribution of the numerous species of the genus into groups I have had considerable difficulty, for, notwithstanding the great similarity in the modifications observable in the American species and in the corresponding Asiatic ones, I have found characters apparently constant in one set, much less so in the others; and this will account for some diversity in the principles on which I have established my sections in the several successive sketches I have given of the genus (in the 'Wiener Annalen,' in the 'Plantæ Junghuhnianæ,' and in Martius' 'Flora') according as I have been working up the American or the Asiatic species. Taking now a general view of the whole genus, after the artificial separation of one American and two Asiatic *Selenolobia* by their peculiar fruit, I can find no character among the remaining sixty odd species, which shall mark out definite sections equally applicable to those of the new and of the old world. I have, therefore, following the rule laid down by De Candolle for similar occasions, distributed them into *series* only, distinguished by no essential character, and connected with each other by intermediate links, either American, Asiatic, or African; but which may yet serve as a help to specific determination, and as a guide to the study of the various modifications presented to us without departing from the generic type.

Commencing with the *American* or true *Triptolemeas*, we have a group clearly distinguished on that continent by their very small, numerous, strictly cymose flowers always practically diœcious—(that is to say, that in the male or barren individuals the ovaries have either no ovules or only scarcely perceptible rudiments of them, and the flowers all drop off without setting, and in the female or fertile ones the anthers are differently shaped from those of the males, and probably imperfect)—and by their pod indurated and strongly reticulate at the seed-bearing part; and no American species presents any intermediate between these and the *Miscolobiums*. Passing on to the corresponding Asiatic and African forms, we have the *D. rimosa* and its immediate allies, which have precisely the pod of the *Triptolemeas* and also their inflorescence and flowers, except that I always find perfect ovules in the flowers even of those individuals in which they never appear to set. This series I have designated as the *Old-world Triptolemeas* (*Triptolemeæ geronitogæ*), characterizing them chiefly by the inflorescence and small flowers, with very short claws to the petals, the vexillum being usually almost sessile. Some species, however, such as the Chinese *D. Miletti* and the African *D. armata*, are almost as closely connected both in flowers and in fruit with *D. sympathetica*, *D. Stocksii*, &c. among *Sissoas* as with the other *Triptolemeas*, so as to preclude any definite limitation. Returning to America, there remain fifteen species which may be termed *American Sissoas*, or *Miscolobiums*, including *Amerimnum* as limited by De Candolle. They all agree in the smooth or scarcely reticulated pod, and in the more irregular inflorescence and rather larger pod of the generality of Asiatic *Sissoas*, and may be subdivided according to the calyx, or to the presence or absence of the tenth stamen. In the corresponding Asiatic and African forms the venation of the pod varies in different species, and the tenth stamen may be present or absent in different flowers of the same species, and neither of these characters gives much assistance in their delimitation or distribution; but the distinction between the monadelphous species and those where the staminal tube is split into two equal bundles, affords the means of dividing them into two long-recognized groups, the *Old-world Sissoas* and the *Dalbergarias*; whilst the same character is not even of specific constancy among the American species.

Ecastaphyllum, or *Hecastophyllum* as some modern purists would have us write it, consisting but of five species, requires no subdivision.

CYCLOLOBIUM.

A genus of four closely allied South American species, whose immediate affinities I cannot satisfactorily trace. The inflorescence is nearly that of the subracemose *Dalbergiææ*, the fruit orbicular as in *Ecastaphyllum* and *Pterocarpus*, thin, with a marginal wing as in some *Derrises*, but it has neither the anthers of the two former, nor the habit or flowers of the two latter genera. In all the species the leaflets are solitary and terminal, so that their relative arrangement is no guide; but I have placed it amongst the genera with alternate leaflets, because the inflorescence and flowers indicate no affinity with *Lonchocarpus* and its allies.

MACHÆRIUM and DREPANOCARPUS.

These two genera, so closely connected with each other as not to be distinguishable without the fruit, were widely separated by the older authors. Even De Candolle, leaving *Drepanocarpus* next to *Pterocarpus* among *Dalbergiææ*, united *Machærium* with *Nissolia* among *Galegeæ*, characterizing it by the papilionaceous corolla, united stamens and samaroid fruit. The true *Nissolia* has, however, since been shown to be *Hedysareous*, and *Machærium* to have all the characters of *Dalbergiææ*. In this tribe the latter genus is readily known by its constantly monospermous pod extended into a wing proceeding from the apex, not from the base as in *Platypodium*, the remains of the style being at the summit of the wing, not forming a spur at its base, as in *Centrolobium*, and the venation of the wing showing that it is an attenuation of the end of the pod, not a lateral appendage to the style, as in *Tipuana*. In flower, *Machærium* is always distinguished from *Dalbergia* and *Ecastaphyllum* by the versatile anthers, and generally from *Pterocarpus* and its allies by the shape of the calyx, the downy vexillum or other characters not quite universal, and from *Lonchocarpus* and its allies by the leaflets mostly alternate, by the wings free from the keel, by the staminal tube never forming a complete sheath, &c. Some species may, however, without the fruit, be confounded at first sight with *Andira*, but the keel-petals united near the apex, the single (very rarely 2) ovules, the smaller flowers, and general habit, will, in most cases, separate the *Machæriums* even before the ovary is at all enlarged.

I have enumerated fifty-six species of *Machærium*, all American, and affording still less than *Dalbergia* any characters in flower or fruit by which they can be divided into sections. All that I have

been able to do for the convenience of study is, to distribute them into five series founded on the form and venation of the leaflets, and partaking of all the uncertainty and indefiniteness usually attending on characters of that kind.

Drepanocarpus, united by Linnæus with *Pterocarpus*, is, when in flower, precisely the same as *Machærium*, and several of the species assume several of the different types of foliage observed in that genus. The fruit is also formed upon the same plan, although it is at first sight so different in shape that the two have seldom, if ever, been brought into comparison. The differences, however, consist only, first, in the indenture on one edge opposite the seed being much deeper, and the corresponding curvature of the opposite edge much greater, giving the pod a reniform or circinate shape, instead of being nearly straight; and secondly, in the upper end of the pod being not at all or scarcely perceptibly attenuated into a wing. They are, therefore, differences in degree and not in plan, and I should have united the two genera as artificial sections of one, were it not that, as with *Ecastaphyllum*, *Drepanocarpus* is an old-established and universally adopted genus, recognizable by a tolerably positive, though purely artificial character. The only tendency towards an intermediate form of pod among known species may be traced through *Machærium Moritzianum*, *M. leucophyllum*, and *Drepanocarpus cristacastrensis*.

TIPUANA, PLATYPODIUM, CENTROLOBIMUM, and PTEROCARPUS.

These four small genera, each with its own peculiar habit and characters, have all several points in common. The pod, as in *Machærium*, is more or less samaroid, indehiscent, and flattened, thickened round the seed, and tending to expand in one direction or another into a wing. It is usually one-seeded, as in *Machærium*; sometimes, however, two, or even three seeds will ripen. They are then not distant, and separated by a thinner or contracted part of the pod, as in *Dalbergia* or *Lonchocarpus*, but close together in the thickened part, separated only by thin but hard or woody transverse partitions. The flowers are usually larger than in *Machærium*, often yellow, and the inflorescence looser, the calyx (except in *Centrolobium*) turbinate or narrowed at the base, the narrow part lined with the petal-bearing disk, whilst in *Machærium* the calyx is almost always rounded at the base, with the disk very short. The petals are always glabrous, and often waved or crisped on the edges, the wings free, the staminal sheath slit open on the upper side, and the anthers versatile. The species of the four genera

are, I believe, all erect trees, not climbers, the leaves alternate, and the leaflets also usually alternate, although sometimes in *Centrolobium* less decidedly so than in the three other genera.

Of the four genera, *Tipuana* is the nearest to *Machærium*, of which I had formerly considered it to be a section, owing to the apparent similarity of the pod, but the inflorescence and flowers are certainly nearer to those of *Pterocarpus*; the pod occasionally ripens two or three seeds, and the differences in its shape, pointed out by Allemañ, are more structural, and consequently important, than they would at first appear. The venation of the wing especially shows that it should be rather considered as a lateral appendage to the style, than as an attenuation of the pod itself. This distinction may be well traced in the young ovary shortly after the flowering is over.

Platypodium closely resembles *Tipuana* in foliage, inflorescence, and flowers, but the pod is quite distinct in structure; the wing proceeds from the stipes, not from the base of the style. When detached it has much apparent resemblance to that of *Tipuana* in shape, but it is as it were reversed, being attached by the end of the wing, not by the seed-bearing end. The difference may be very early traced in the growing ovarium, besides that, in the only two known species, the lowest as well as the uppermost stamen is free in *Platypodium*, whilst in *Tipuana* all are united, or only the upper one free.

Centrolobium has a peculiar coarse habit, and the calyx is different from that of any of the adjoining genera. The pod is very large, resembling those of *Machærium* and *Tipuana* in shape, the wing proceeding from the apex, but the remains of the style, instead of being at the summit of the wing, form a lateral spur at its base. The seed-bearing part is also, in the few known species, thickly covered with long straight prickles.

Pterocarpus, the principal genus of the group, has the characteristic calyx and flowers above mentioned, but, in the fruit, instead of the oblong wing either above or below the seed-bearing portion, the pod is more or less attenuated at the edges all round it. In general shape it is usually nearly as broad as long, more or less irregularly orbicular or oval; the veins marking the course of the style often much curved above the seed, so that the remains of the free part of the style often appear very low down the inner edge of the pod. In the typical East Indian species the seed-bearing centre is more or less thickened, woody, or slightly corky, and the broad edges all round are very thin, with a very lateral style. In

the *P. erinaceus* the shape is nearly the same, but the centre is covered with straight prickles. In the *P. Draco* the pod is still more oblique, and the very thick and corky seed-bearing part is surrounded by a much narrower thin edge, which is sometimes reduced to a mere keel. In *P. Rohrii* and some others the centre is but slightly thickened, the greater part of the large orbicular pod being thin and almost membranous. In the African *P. lucens* and *sericeus* and the American *P. ancylocalyx* the consistence of the whole pod is more uniform, the centre is but slightly thickened, and the edges are not membranous, the pod is also straight and not so broad, varying in the same species from three quarters to not half as broad as long. All these differences, though slight in the plan of the pod, are so striking in outward appearance, that they have long since been made use of to establish sections, which I formerly proposed to raise to the rank of genera. But a careful comparison of the more ample materials we now possess has convinced me that most of such differences are specific only, and I have therefore now reunited *Echinodiscus*, *Moutouchia*, *Amphy-menium*, and *Ancylocalyx* with *Pterocarpus*. De Candolle's section *Ateleia*, of which he had not seen the flowers, comprises one or two species of an otherwise unpublished *Cæsalpineous* genus, with a Cape species of *Viborgia*. My *Phellocarpus* was founded on a deformed corky state of the fruits of a *Pterocarpus*, probably *P. ancylocalyx*.

PÆCILANTHE.

Under this name I have published three South American species, evidently congeners of each other, and allied to *Pterocarpus*, but differing somewhat in habit, in the more regular and deeply cleft calyx, and in the short keel. The perfect fruit is not known for certain, but shortly after flowering the growing ovary is already very different from that of *Pterocarpus*, being long and narrow, with several ovules; and, if my conjecture is right, that Velloso's figure of his *Pterocarpus falcatus* (Fl. Flum. vii. t. 93) represents my *Pæcilanthe grandiflora*, the pod would be in some measure intermediate between those of *Pterocarpus* and *Lonchocarpus*.

Among Fendler's Venezuelan plants is a remarkable one distributed under the No. 2223, which is also evidently allied to *Pterocarpus*, but the calyx, pointed and closed in the bud, appears always to open by a longitudinal slit, becoming, as it is termed, *spathaceous*. In the specimen, however, which I have seen, the flowers are only commencing to expand, and there is nothing to

indicate the direction in which the fertilized ovary would enlarge. I have therefore not ventured to fix its generic affinities.

PLATYMISCIUM.

A small genus of about thirteen species, all American, and at once known by the leaves, constantly opposite or ternately verticillate,—an arrangement unknown in any other pinnate-leaved Papilionaceæ, excepting a few species of *Dipteryx*, which, whether in flower or in fruit, cannot for a moment be confounded with it. The *Platymisciums* are all glabrous, except a slight hairiness on the racemes of a very few species. The flowers are yellow, as in *Pterocarpus*, which they resemble in many respects. The fruit is flat and very thin, as in some *Dalbergias* and *Lonchocarpus*, but the flowers have neither the peculiar anthers of *Dalbergia* nor the closed staminal tube or adherent alæ of *Lonchocarpus*. The species are, however, very difficult to characterize. In many cases, the leaves are not fully developed at the time of flowering, and the leaflets very deciduous when the fruit is advanced. The specimens in herbaria are therefore usually very unsatisfactory, and several of the forms here described as species may possibly, when better known, have hereafter to be united.

HYMENOLOBIUM and OSTRYOCARPUS.

Two isolated flat-fruited species, with the foliage of *Lonchocarpus*, but with the wings entirely free from the keel, and the stamens never forming a complete tube. In the *Hymenolobium*, from South America, the flowers are nearly those of the *Andira amazonum*, but the thin broad membranous pod is very different from that of any true *Andira*. *Ostryocarpus*, from tropical Africa, is much nearer *Lonchocarpus*, but the anomalies in the petals, stamens, and pod prevent the joining it with that genus without giving to the latter a character too vague for practical use. I have been obliged, therefore, to leave these two plants as single species of detached genera.

LONCHOCARPUS, DERRIS, PONGAMIA, PISCIDIA, and MÜLLERA.

These five genera constitute a natural group distinguished among *Dalbergiæ* by their inflorescence, by their wing-petals adhering to the keel by means of a lateral fold or protuberance immediately above the claw, and by the tenth or upper stamen, which, although free and at some distance from the others at the very base, is generally united with, or at any rate in close contiguity with the

others in the middle,—all characters closely connecting them with the woody *Galegeæ*. The majority of species are tall, woody climbers, with a very few arborescent ones; all have alternate pinnate leaves with opposite leaflets (reduced only in the case of the *Lonchocarpus unifoliolatus* to a single terminal leaflet), and purple-reddish, white or very pale straw-coloured flowers, never really yellow. There is indeed so much conformity in the structure of their flowers and in the general plan of their pods, that I should have had no hesitation in uniting them all into one large genus divided artificially into sections, were it not for the inconvenience, already alluded to, of suppressing long-established and universally recognized genera, when they can be marked out by a tolerably positive character, however artificial and isolated that character may be.

This delimitation, and even the precise separation of the whole group from the *Galegeæ*, is, however, in this instance, attended with considerable difficulty. Out of rather more than eighty evidently distinct species, there are still about twenty in which the pod is entirely unknown, and several more in which it has been seen only in a half-grown state, and much remains to be learnt with regard to a great part of the group. Originally, the few species known to earlier botanists were mostly referred to *Robinia*, which became a general receptacle for Papilionaceous trees with united stamens and a flat pod, whilst the climbers were inserted promiscuously into *Robinia* or *Dalbergia*. When these old groups were broken up, the American species were generally referred to *Lonchocarpus*, and the Asiatic ones distributed under *Pongamia* and *Dalbergia*. In my Vienna memoir I proposed no alterations in this respect, for the American *Lonchocarpi* had been usually referred to *Galegeæ*, a tribe which I had not then time to work up, and I had scarcely any materials for the Asiatic genera. Nor did Vogel publish any revision of the few Brazilian species, and to the present day *Lonchocarpus* remains in a state of utter confusion, not a little increased by the creation of detached genera founded upon supposed discrepancies in the form of the pod, without any attempt at investigating what should be considered as the limits of variation of that organ in the true *Lonchocarpi*. The Asiatic species were partially worked up by Wight and Arnott with that care which characterized the whole of their Peninsular ‘Prodromus.’ They judiciously distinguished the *Brachypterums* from the true *Dalbergias*, and their new genus *Millettia* from *Pongamia*. Since then, I sketched out, in a note to the ‘Plantæ Junghuhnianæ,’ the principal groups sug-

gested by a general consideration of the Asiatic species, and these groups have been adopted by Miquel in his 'Flora van Nederlandsch Indie,' with the addition of two new small genera, but none of us had attempted any comparative examination of the American and Asiatic species. This investigation I have now been compelled to take up, in order to give some precision to the generic characters for Martius' Brazilian Flora, and the result has been a redistribution of some species, and a reduction of seven or eight small genera whose characters proved to be of no more than specific value.

After a general examination of all the species of which I had specimens, the first difficulty occurred in establishing a line of demarcation between such of these genera as should be retained among *Dalbergiæ*, and the arborescent *Galegeæ* with which they are so closely connected, and I confess that I have been unable to find any character more precise than that of the pod, indehiscent in the former, opening in two valves in the latter. This distinction may indeed be often inferred from the inspection of the ovary, of which the cavity is usually larger in proportion to the ovules, where the valves are afterwards to become free, than when they remain firmly adherent all round the seeds, and it is frequently accompanied by differences in habit, and other unimportant characters; still the passage from the one to the other is, in some instances already alluded to, so gradual, that the limits between the two tribes remain far from satisfactory.

This definition has obliged me in the first place to bring into *Dalbergiæ* all the true *Lonchocarp*i as well as *Müllera* and *Piscidia*, in which the valves cohere as closely round the seed as in any admitted *Dalbergiæ*, and, on the other hand, I have retained in or referred back to *Galegeæ* the *Gliricidias* included by DeCandolle under *Lonchocarpus*, Arnott's genus *Millettia*, and all those closely-allied species for which I had proposed the genera *Mundulia* and *Otosema*, in all of which the pod, though often thick and hard, or almost woody or fleshy, still appears always to open in two valves when quite ripe. To the same group belong *Marquartia*, Vog., described as having the stamens free,—an error arising from the examination of very young buds before the staminal sheath has grown up; *Padbruggea*, Miq., in which, however, the ripe pod has not been seen; *Berrebera*, Hochst, and *Fornarinia*, Bertol., all evidently congeners of *Millettia*, or of its two above-named allies. How far these three genera should be reunited or remain distinct, and how far they should be distinguished from the American *Gli-*

ricidia and *Wisteria*, is a subject I reserve for future consideration, none of that set of *Galegeæ* having come within the Brazilian flora.

Returning to the *Lonchocarpoid* genera which I have brought into or retained in *Dalbergiæ* under the five names which head this article, it will be seen that I have, on the sole consideration of the pod, maintained as distinct, for the reasons above mentioned, the three isolated species so long known as *Pongamia*, *Piscidia*, and *Müllera*, adding, however, to the latter Zuccarini's *Cyanobotrys*, and distributed the remainder under *Lonchocarpus* and *Derris*, the former consisting of thirty-eight American species, seven African, and one common to both continents, and including *Neuroscapha*, Tul., *Sphinctolobium*, Vog., *Philenoptera*, Fenzl, whilst *Derris* consists of three American and twenty-nine Asiatic species, including *Brachypterum*, W. & Arn., and *Aganope*, Miq. In *Lonchocarpus* the pod is flat, considerably longer than broad, varying in every possible gradation from the thin, paper-like consistency which characterized the *Philenoptera*, Fenzl, to the thick, hard substance of *Sphinctolobium*, without any longitudinal wings, but with a frequent tendency to thicken at the seed-bearing suture, especially at the point of insertion of the seeds, sometimes giving the edge a flat or concave surface of above 3 lines in breadth; and it was this peculiarity, observed in its greatest degree, that suggested Tulasne's genus *Neuroscapha*. I have, however, been able to make but very little use of these differences in establishing sections of the genus, and have been obliged again to have recourse to its subdivision only into series, founded chiefly on inflorescence, and partially also on indumentum, and on the presence or absence of callous thickenings or appendages at the base of the vexillum; the latter a character which, although of specific constancy, proves of less importance for sectional or generic distinction than I at one time believed it to be.

Derris has the flat pod of *Lonchocarpus*, varying likewise in consistency from thin and membranous to thick and almost woody, without, however, any special thickening of the upper suture; and it is generically distinguished by the upper edge, and sometimes the lower one also, being bordered by a narrow longitudinal wing, which varies, like the pod itself, in consistency, but is always distinctly marked off by a prominent longitudinal vein or nerve on each side indicating the real suture. In the subdivision of the genus, characters rather more marked seemed to warrant the establishment of sections, although they are too artificial to be con-

sidered as genera. The two which pass the most into each other are the two first, *Brachypteronum* and *Euderris*, hitherto universally regarded as separate genera; the flowers and inflorescence are the same in both, the vexillum has no callosities, the stamens are all united (except in one American species, where the tenth stamen is often very early isolated), and the pod is winged on one edge only; the only difference consists in the shape of the pod, narrow, pointed, and more *Dalbergia*-like in most species of *Brachypteronum*, broad and rounded at the top in most species of *Euderris*; but *D. guianensis*, *D. javanica*, and one or two others are intermediate, as it were, between the two. The third section, *Dipteroderris*, has the vexillum and stamens of *Euderris*, but usually a more paniculate inflorescence, the pod generally thicker and winged along both sutures instead of along the upper one only. In one species, however, the wing of the carinal or lower suture often disappears, varying much on the same specimen. The fourth section, *Paraderris*, has the stamens and pod of *Euderris*, except that the latter is usually thicker and harder, but the vexillum is thickened at the base into two small callosities or inflected appendages; the inflorescence is also peculiar, the fascicles or short side-branches of the raceme (or racemiform panicle) are pedunculate, not closely sessile as in the other sections. *Paraderris* includes also the only true *Derris* which has the vexillum silky-hairy, as in so many *Lonchocarpus* and *Millettias*. Lastly, the fourth section, *Ajanope*, with the vexillum and pod of *Dipteroderris*, has the tenth stamen always quite free, with a thyrsoïd inflorescence approaching that of the paniculate *Brachypteronum* and *Dipteroderris*. This sectional name is taken from that of Miquel's proposed genus *Ajanope*, although without the same limits, for Miquel distinguished *Derris* and *Ajanope* by attributing to the former monadelphous stamens and a pod usually one-winged only, and to *Ajanope* diadelphous stamens and a two-winged pod; but the two latter characters are known to go together in one species only, the *D. thyrsoïdea* (*Ajanope floribunda*, Miq.); *D. marginata* (*Ajanope marginata*, Miq.) has monadelphous stamens with a two-winged pod, and *D. sinuata* diadelphous stamens with a one-winged pod.

I adopted for the whole genus Loureiro's old name, *Derris*, because I could clearly identify it with his character, but I have been unable to take up the names of either of his two species; for the one, *D. pinnata*, of which he had not seen the fruit, proves to be the common *Dalbergia tamarindifolia*; the other, *D. confertifolia*, is a trifoliate variety, or rather specimen, of a species which has

usually five leaflets ; the name was therefore very inappropriate, and the species, a very common one, is so well known under Willdenow's and Roxburgh's name of *uliginosa*, that I have preferred the latter, although not of so old a date.

Pongamia was established by Ventenat for the *Robinia mitis* of Linnæus, or *Galedupa indica* of Lamarck, the name of *Galedupa*, although older, being suppressed, as the plant proved not to be the *Caju-Galedupa* of Rumphius, as was at first supposed. Several species have since been added, but they all belong either to *Derris* or to *Millettia*, and *Pongamia glabra* again remains alone, unless it be united with *Lonchocarpus* and *Derris*, in which case Loureiro's name, being the oldest, would have to be adopted for the whole group, and *Lonchocarpus* and *Pongamia* would be reduced to sections.

Piscidia is a Linnean genus consisting of a single species, remarkable for the four broad longitudinal wings of the pod, which are lateral expansions of the sutures. Linnæus did, indeed, distinguish two species, one with continuous wings, the other with the wings here and there interrupted between the seeds ; but these interruptions have since been shown to be owing only to the accidental abortion of ovules, and consequent non-development of the corresponding portions of the pod, and to be very inconstant in the same specimens. In flower it is sometimes difficult to distinguish the plant from some specimens of *Lonchocarpus guatemalensis*. The plants, since referred to *Piscidia*, are chiefly species of *Sesbania*, in which the pods are similarly four-winged.

Müllera of Linnæus was again founded on a single species on account of its remarkable pod, which, in its more perfect state, resembles a string of large beads. Not uncommon in Cayenne, it has given rise to much confusion in synonymy. Aublet, not having identified it with Linnæus' character, published it under the name of *Coublundia* ; and again (having a loose fruit, reduced by abortion to a single seed, and which then is nearly globular), he figured it as the pod of his *Deguelia*, his flowering specimens of *Deguelia* being those of of my *Derris guianensis* (*Lonchocarpus pterocarpus*, D C.). Miquel, having at first seen specimens in flower only, struck with their close resemblance to those of *Sphinctolobium virgilioides*, Vog., described them as a new *Sphinctolobium*, till the receipt of fruiting specimens enabled him to recognize Linnæus' *Müllera*, and he was then led to conclude that even Vogel's *Sphinctolobiums* might be reduceable to *Müllera*. Their fruits are, however, all flat, and *Müllera* may be kept up for those species of which the thick fruit

is nearly circular in its transverse section. It would thus include *Cyanobotrys*, Zuccar., which differs in the pod being much less constricted between the seeds. Its flowers and foliage, if rightly matched by Zuccarini, are precisely those of another *Lonchocarpus*, the West Indian *L. violaceus*.

EUCHRESTA.

A single species, the history and characters of which have been well elucidated by Bennett in the 'Plantæ Javanicæ Rariores.' In many respects it comes very near to some *Sophoras*, but the united stamens refer it without doubt to *Dalbergiæ*. In the present arrangement it is intermediate, as it were, between the *Lonchocarpuses* and the *Geoffroya* groups. The inflorescence, ovary, and seeds are those of *Geoffroya*, whilst the foliage, united keel-petals, and thin pericarp bring it nearer to the *Lonchocarpoid* genera.

ANDIRA and GEOFFROYA.

These two genera, originally united under the latter name, are certainly very closely allied to each other. Considered together, their flowers and foliage have nothing remarkable, resembling so much those of some other *Dalbergiæ* that some of their species have in that state been occasionally confounded with *Machæriums* or *Lonchocarpuses*. They may, however, be generally distinguished from both those genera by their free keel-petals and more pendulous ovules; and their fruit is very different, having a more or less succulent external sarcocarp, with the endocarp more or less hardened, and occasionally thick, and almost woody. In the half-grown or unripe state in which the fruits are sent by collectors for the herbarium they show no generic difference between *Andira* and *Geoffroya*, and but very little in the several species, varying chiefly in size and somewhat in shape,—more or less compressed, ovoid, or nearly globular, straight or oblique, obtuse or pointed. The fully ripe pods are but little known; they have been but very seldom and very vaguely described when fresh, and in our collections they are very scarce, and generally more or less contracted or otherwise altered by desiccation; so that, whatever diversity they may really show, they afford very little assistance in the characterizing species, still less in the delimitation of the two genera. I should, indeed, have proposed their reunion but for rather prominent differences in habit. *Andira* has branching panicles of violet, pink, or purplish sweet-scented flowers, whilst

in *Geoffroya* the flowers are yellow and foetid, in simple racemes. To this may be added that the calyx is broader, less oblique, and less deeply toothed in *Andira* than in *Geoffroya*, the former approaching more to the habit of *Machærium*, the latter to that of *Pterocarpus*. The arrangement of the leaflets is variable in both genera.

The species of *Andira* present in many instances considerable difficulty. After deducting the *A. Amazonum*, whose characters, if confirmed by the fruit, may possibly be considered as generic, and the well-marked *A. cujabensis* and *A. cubensis*, the remainder, although widely different in extreme cases, seem to pass so gradually into each other that their delimitation seems more uncertain than in the case of any other *Dalbergiæ*; and although I have now considerably reduced the species which I had originally established from almost solitary specimens, it is not unlikely that, when better known, some of those I have still retained may prove to be varieties only. The *Geoffroyas* appear to be better defined, but, with the exception of the widely-spread *G. superba*, they are as yet scarcely known but from single specimens.

DIPTERYX and PTERODON.

This is another pair of closely allied genera, forming a little group readily distinguished among *Leguminosæ* by the form of the calyx and petals. The petal and stamen-bearing disk lines the whole of the short tube of the calyx, of which the two upper lobes, large and oblong, are closely pressed against each other, face to face in the bud, and entirely enclose the petals, the minute lower lobes forming a scarcely perceptible lower lip, resembling in the bud a small outer scale at the base of the upper lobes. The wings of the corolla are notched or bifid, which does not occur, to my knowledge, in any other *Papilionaceæ*, and the only approach to the above-mentioned structure in the calyx is in Mr. Spruce's new genus *Monopteryx* among *Sophoreæ*, where, however, the two upper lobes are united on the upper side to near the apex. The structure of the ovary and the drupaceous legume place these two genera in the same group as *Andira* and *Geoffroya*. In their foliage, the usual deficiency of the terminal leaflet distinguishes them from all other *Dalbergiæ*, but this character does not appear to be quite constant. Between the two genera the chief differences are in habit, the leaflets being few, large, and coriaceous in *Dipteryx*, more numerous, smaller, and thinner in *Pterodon*; in the consistency of the upper lobes of the calyx—coriaceous in the

former, almost petaloid in the latter; and more especially in the pod, which in *Dipteryx* is a thick (although slightly compressed) drupe, with a tough, filamentous, somewhat fleshy, thick sarcocarp adhering closely to the hard, woody endocarp; whilst in *Pterodon* it is very flat, the sarcocarp very thin, and falls off in two valves, leaving a hard, flat, woody endocarp replete with reservoirs of oil. As, however, none of these differences are structural, but all reducible to degree in consistence and relative thickness, it is not impossible that intermediate species may hereafter be found requiring their reunion into one genus.

I have followed the generality of botanists in considering Aublet's two genera, *Coumarouna* and *Taralea*, as sections only, retaining Schreber's name for the united genus, as it would now be inconvenient to revert to either of Aublet's; although I think that *Coumarouna*, derived from a not uncommon local name of the Tonga bean, would not have been objectionable for the whole of the species. I have not, however, been able to take the opposite or alternate leaves for the sectional character, for that would have separated the *D. nudipes* from the *D. oppositifolia*; but have derived the distinctions rather from the ovary, as being more in accordance with general habit.

I now proceed to the technical synopsis of the genera and species.

DALBERGIEÆ.

(Tribus Leguminosarum Papilionacearum.)

Caulis lignosus, fruticosus, arboreus v. alte scandens. Folia pin-
natim 5-pluri-foliolata (rarissime 3-1-foliolata). Stipellæ nullæ
v. rarius parvæ setacæ. Stamina monadelphæ v. varie connata.
Legumen indehiscens, mono- v. oligospermum.—Species in regioni-
bus calidioribus utriusque orbis crescentes.

CONSPECTUS GENERUM.

* **PTEROCARPEÆ.** *Foliola pleraque alterna (excepto Centrolobio) rarius solitaria. Legumen membranaceum, coriaceum, lignosum, v. suberoso-incrassatum. Semina sæpius transversa v. hilo laterali affixa.*

1. **DALBERGIA.** *Antheræ parvæ, terminales, loculis v. erectis rima brevi terminali dehiscentibus, v. obliquis basi divergentibus, rima longitudinali (in omnibus sequentibus præter Ecastaphyllum antheræ versatiles loculis parallelis). Legumen oblongum v. lineare, rarius falcato-abbreviatum, tenue v. ad semen leviter incrassatum.—Amphigææ.*

2. *ECASTAPHYLLUM*. Omnia *Dalbergiæ*, præter legumen brevius, latius, suborbiculare, et demum sæpe suberoso-incrassatum.—*America et Africa occidentalis*.

3. *CYCLOLOBIUM*. Calyx basi obtusus. Ovula plurima. Legumen suborbiculare v. late falcatum, tenue. Folia 1-foliolata.—*America*.

4. *MACHÆRIUM*. Calyx basi obtusus. Vexillum sæpius sericeum. Ovulum 1 (rarissime 2). Legumen basi monospermum superne in alam attenuatum, venis alæ reticulatis.—*America*.

5. *DREPANOCARPUS*. Flos *Machærii*. Legumen reniforme v. circinatum apice vix attenuatum.—*America et Africa occidentalis*.

6. *TIPUANA*. Calyx basi acutus v. turbinatus. Petala glabra. Legumen basi seminiferum, apice alatum, venis alæ a stylo divergentibus arcuato-subparallelis.—*America*.

7. *PLATYPODIUM*. Flos *Tipuanæ*. Legumen apice seminiferum basi in alam attenuatum.—*America*.

8. *CENTROLOBIUM*. Calyx amplius. Petala glabra. Legumen basi seminiferum et echinatum, apice alatum, stylo ad basin alæ calcariformi.—*America*.

9. *PTEROCARPUS*. Calyx basi acutus v. turbinatus. Petala glabra. Legumen suborbiculare v. late oblongum, medio seminiferum (et sæpe incrassatum), cirumeirca v. fere totum attenuatum.—*Amphigææ*.

10. *PÆCILANTHE*. Calyx semi-4-fidus, basi acutus. Legumen oblongum, læve.—*America*.

** *LONCHOCARPEÆ*. *Foliola opposita, rarissime hinc inde subalterna, in una specie solitaria. Legumen seriei prioris.*

11. *PLATYMISCIUM*. Folia ipsa opposita. Petala carinalia libera. Ovulum 1. Legumen oblongum planum tenue.—*America*.

12. *HYMENOLOBIUM*. Petala carinalia libera. Ovula plurima. Legumen latum membranaceum.—*America*.

13. *OSTRYOCARPUS*. Petala carinalia connata. Alæ liberæ. Ovula plurima. Legumen orbiculatum planum coriaceum.—*Africa occidentalis*.

14. *LONCHOCARPUS*. Alæ carinæ cohærentes. Ovula plurima. Stamina medio in tubum completum connata. Legumen plano-compressum, sutura vexillari utrinque nervata v. incrassato-dilatata nec dorso unialata.—*America et Africa*.

15. *DERRIS*. Flos *Lonchocarpi*, stamine vexillari tamen nonnunquam libero. Legumen plano-compressum, sutura vexillari v. utraque unialata.—*America et Asia*.

16. *PONGAMIA*. Omnia *Lonchocarpi*, excepto legumine breviori crassiore, suturis obtusis.—*Asia*.

17. *PISCIDIA*. Omnia *Lonchocarpi*, excepto legumine longitudinaliter late 4-alato.—*America*.

18. *MÜLLERA*. Omnia *Lonchocarpi*, excepto legumine crasso-carnoso, toruloso, moniliformi v. subgloboso.—*America*.

*** GEOFFROYEÆ. *Foliola alterna v. opposita. Petala carinalia libera v. rarissime subconnata. Legumen (excepta Euchresta) drupaceum. Semen unicum, pendulum.*

19. EUCHRESTA. Calyx vix dentatus. Vexillum angustum. Petala carinalia connata. Alæ liberæ. Legumen subglobosum, pericarpio tenui.—*Archipelagus indicus.*

20. ANDIRA. Calyx latus truncatus v. breviter dentatus. Drupa globosa, ovoidea v. compressiuscula. Flores paniculati, sæpius violacei, suaveolentes.—*America et Africa occidentalis.*

21. GEOFFROYA. Calyx latus, distincte v. profunde dentatus. Drupa *Andiræ*. Flores simpliciter racemosi, sæpius flavi, foetidi.—*America.*

22. DIPTERYX. Calycis tubus brevissimus, lacinia 2 summæ maximæ crassiusculæ alæformes, 3 inferiores minimæ v. inconspicuæ. Drupa oblonga, compressiuscula.—*America.*

23. PTERODON. Calyx *Dipterygis* nisi alis membranaceo-petaloideis. Drupa plano-compressa.—*America.*

I. DALBERGIA, *Linn.*

Dalbergiæ sp. et Amerimnum, *DC. Prod.*, *Triptolemea*, *Mart.*, *Miscobium*, *Vog.*, *Endespermum*, *Blume*, et *Podiopetalum*, *Hochst.*

Calyx campanulatus, 5-dentatus, dentibus summis latoribus, infimo sæpius productiore. Petala carinalia dorso apice carinata. Stamina 10 monadelpha vagina latere superiore fissa, v. 9 (vexillari deficiente), v. vagina postice fissa in phalanges 2 disposita (isadelpha). Antheræ parvæ, erectæ, didymæ, loculis dorso oppositis apice breviter v. rarius longitudinaliter dehiscentibus. Ovarium stipitatum pauciovulatum. Legumen samaroideum, oblongum v. lineare rarius falcatum, planum, tenue, indehiscens, medio monospermum v. dissite oligospermum, ad semen paullulum induratum et sæpius reticulatum, marginibus nec incrassatis nec alatis. Semen reniforme, plano-compressum, radícula inflexa. Arborea v. frutices scandentes, in regionibus calidis utriusque orbis vigentes. Folia alterna, impari-pinnata, foliolis exstipellatis plerisque alternis. Inflorescentia dichotome cymosa v. irregulariter subcymoso-paniculata, axillaris v. terminalis. Flores parvi, sæpius numerosi, purpurei, violacei, v. albi.

Series 1. TRIPTOLEMEÆ AMERICANÆ. Cymæ 2-3-chotomæ, floribundæ. Flores minimi, vix unquam 2 lineas excedentes, subdioici. Calycis dentes obtusi. Petalorum ungues breves. Stamina 10, monadelpha. Ovarium 1-ovulatum. Legumen rectum, ad semen induratum et reticulato-venosum.

1. *D. variabilis.* (Brasilia.)
2. *D. riparia.* (Brasilia sept.)
3. *D. brasiliensis.* (Brasilia mer.)

Series 2. TRIPTOLEMEÆ GERONTOGÆ. Omnia ut in Americanis,

floribus tamen omnibus subhermaphroditis et raro 2 lineas æquantibus, vexilli unguis sæpius brevissimus et ovula sæpius 2.

4. *D. rimosa*. (India sept.)
5. *D. Cumingii*. (Ins. Philippinæ.)
6. *D. emirnensis*. (Madagascar.)
7. *D. Thomsoni*. (India sept.)
8. *D. Junghuhnii*. (Archipelagus Indicus.)
9. *D. parviflora*. (Archipelagus Indicus.)
10. *D. hostilis*. (Africa tropica.)
11. *D. carinata*. (Africa austr. occid.)
12. *D. multijuga*. (Africa austr. occid.)
13. *D. Milletti*. (China austr.)

Series 3. *SISSOÆ AMERICANÆ*. Inflorescentia irregulariter paniculato-ramosa, ramis ultimis subcymosis, rarius ad racemos subsimplices reducta. Flores hermaphroditi (sæpius 3-5 lin., in *D. glaucescenti* et *gracili* minores). Petalorum unguis calyce breviores. Stamina 9 v. 10 monadelphæ (rarissime in *D. Spruceana* et *glaucescenti* in phalanges 2 separanda). Legumen mono- v. pleiospermum, ad semina vix induratum et læve v. rarius tenuiter reticulatum.

* *Stamina 10, rarius 9, calycis lacinia 3 inferiores acutæ.*

14. *D. Miscolobium*. (Brasilia.)
15. *D. Spruceana*. (Brasilia bor.)
16. *D. calycina*. (Guatemala.)
17. *D. glandulosa*. (Brasilia.)
18. *D. acuta*. (Brasilia.)
19. *D. cuyabensis*. (Brasilia.)

** *Stamina 10. Calycis lacinia 4 superiores obtusæ.*

20. *D. Amerimnum*. (America tropica.)
21. *D. nigra*. (Brasilia.)
22. *D. Campeachiana*. (America centralis.)
23. *D. glaucescens*. (Brasilia.)
24. *D. lateriflora*. (Brasilia.)
25. *D. densiflora*. (Brasilia.)

*** *Stamina 9. Calycis lacinia 4 superiores obtusæ.*

26. *D. foliolosa*. (Brasilia.)
27. *D. villosa*. (Brasilia.)
28. *D. gracilis*. (Brasilia.)

Series 4. *SISSOÆ GERONTOGÆ*. Inflorescentia cymosa v. in paniculas minus regulares abiens, rarissime ad racemos subsimplices reducta. Flores hermaphroditi, 2-4 lin. longi. Petalorum unguis calycis dimidium (et interdum calycem totum) superantes. Stamina 9 v. 10, monadelphæ.

Legumen 1-3-spermum, ad semina læviusculum v. rarius ut in *Triptolomeis* induratum et corrugatum v. reticulatum.

* *Foliola pauca majuscula. Flores distincte pedicellati.*

- 29. *D. latifolia.* (India.)
- 30. *D. Javanica.* (Java.)
- 31. *D. cultrata.* (Burmah.)
- 32. *D. sissoides.* (Peninsula Indica.)
- 33. *D. Championi* (*D. pseudo-Sissoo?*). (Ceylon et Archipelagus Indicus.)

** *Foliola pauca majuscula (sæpe acuminata). Flores subsessiles.*

- 34. *D. Sissoo.* (India.)
- 35. *D. obovata.* (Africa austr.-occid.)
- 36. *D. ovata.* (Burmah.)

*** *Foliola ultra 9 obtusissima v. retusa. Flores subsessiles. Petalorum unguis calycis tubo breviores.*

- 37. *D. foliacea.* (Burmah.)
- 38. *D. discolor.* (Borneo.)
- 39. *D. confertiflora.* (India.)
- 40. *D. sympathetica.* (Peninsula Indica.)
- 41. *D. Stocksii.* (Peninsula Indica.)

**** *Foliola ultra 7 (excepta D. rubiginosa) obtusissima v. retusa. Flores subsessiles (excepta D. rubiginosa). Petalorum unguis calycem subæquantes v. superantes.*

- 42. *D. Gardneriana.* (Peninsula Indica.)
- 43. *D. velutina.* (India or., Burmah.)
- 44. *D. rubiginosa.* (Peninsula Indica, China austr.)
- 45. *D. congesta.* (Peninsula Indica.)
- 46. *D. densa.* (Nova Guinea.)
- 47. *D. Hancei.* (China austr.)
- 48. *D. tamarindifolia.* (India et Archipelagus.)
- 49. *D. polyphylla.* (Ins. Philippinæ.)

Series 5. DALBERGARIÆ GERONTOGÆÆ. Inflorescentia et flores *Sissoarum gerontogearum*, exceptis staminibus constanter 10 in phalanges 2 dispositis (isadelphis). Legumen *Sissoarum*.

* *Calycis dentes omnes acuti.*

- 50. *D. paniculata.* (India.)
- 51. *D. Assamica.* (India sept.)

** *Calycis dentes 2 v. 4 superiores obtusi.*

- 52. *D. lanceolaria.* (Peninsula Indica et Ceylon.)
- 53. *D. hircina.* (India sept.)
- 54. *D. volubilis.* (India.)

- 55. *D. purpurea*. (Burmah.)
- 56. *D. saxatilis*. (Africa tropica occid.)
- 57. *D. melanoxylon*. (Africa tropica.)
- 58. *D. pubescens*. (Africa tropica occid.)
- 59. *D. stipulacea*. (India sept. et or.)
- 60. *D. Luzoniensis*. (Ins. Philippinæ.)
- 61. *D. flexuosa*. (India sept.)

Series 6. *SELENOLOBIA*. Legumen breve, monospermum, falcatum v. lunato-subreniforme crassiusculum. Cætera *Sissoarum*.

* *Gerontogææ*.

- 62. *D. monosperma*. (Ceylon, India, China austr., Malacca.)
- 63. *D. spinosa*. (India.)

** *Americanæ*.

- 64. *D. inundata*. (Brasilia bor.)

Series 1. *Triptolemeæ Americanæ (subdioicæ)*.

1. *D. VARIABILIS* (*Vog. Linnæa*, xi. p. 196), subscandens, glabra v. pubescens, foliolis 5-13 ovatis oblongisve obtusis v. acutiusculis, cymis dichotomis folio brevioribus v. summis paniculatis, floribus parvis subdioicis, leguminis stipite calyce longiore.—*Triptolemea platycarpa*, *T. ovata*, *T. pauciflora*, *T. montana*, *T. latifolia*, et *T. glabra*, Benth. in Ann. Mus. Vind. ii. pp. 102 et 103.—*Pterocarpus frutescens*, Vell. Fl. Flum. vii. t. 96.—Foliola 1-1½ v. rarius 2-pollicaria, forma valde variabilia, supra insigniter venulosa, subtus plus minus pubescentia, rarius omnino glabra. Flores in cyma numerosissimi, 2-2¼ lin. longi, albid. Ovula in masculis sæpius omnino desunt, rarius minutissima et abortientia. Legumen 1½ poll. longum, 5-9 lin. latum, medio ad semen insigniter reticulatum.

Hab. Tropical America; widely spread in southern and central Brazil, where it is said to form a small tree in open hot situations, and a woody climber in woods (*Vauthier*, n. 78, 132, & 180, *Blanchet* 2840, 3426, 3674, 3675, and 3784, *Mart. Hb. Fl. Bras.* n. 175, &c.), also in Eastern Peru, near Tarapoto, *Spruce*, n. 4517, and in South-western Guiana, *Schomburgk*, 1st coll. n. 801.

β, *tomentosa*, pube evidentiore, foliolis sæpius quam in formis glabris numerosioribus.—*Triptolemea myriantha*, Bth. in Ann. Mus. Vind. ii. p. 102.—*T. pubescens*, Benth. in Hook. Journ. Bot. ii. p. 68.—*Dalbergia tomentosa*, *Vog. Linnæa*, xi. p. 197.

Hab. Brazil, prov. Minas Geraes, Ceara, et Piauhy (*Gardner*, n. 1537 et 2553; *Mart. Hb. Fl. Bras.* n. 1309).

2. *D. RIPARIA* (*Benth. in Mart. Fl. Bras. Leg. ined.*), fruticosa, subarborescens, pubescens, foliolis 5-9 ovali-oblongis acuminatis, cymis dichotomis folio brevioribus v. summis paniculatis, floribus parvis subdioicis, legumine (oval-oblongo?) subsessili.—*Triptolemea*

riparia, Mart., Benth. in Ann. Mus. Vind. ii. p. 103. Affinis *D. variabili*, foliola vulgo majora (2-4-pollicaria), cymæ densiores, flores numerosiores minoresque, vix unquam 2 lin. longi. Ovarium brevius stipitatum et stipes post anthesin haud increescere videtur. Legumen tamen perfectum non vidi.

Hab. North Brazil (*Schomburgk*, 1st coll. n. 907, etc.).

3. *D. BRASILIENSIS* (*Vog. Linnæa*, xi. p. 198), pubescens, foliolis 21-25 lineari-oblongis, cymis (dichotomis?) tomentosis floribus parvis (subdioicis?).

Hab. South Brazil (*Sello*).

I have not seen these specimens, which are said to differ from *D. variabilis* chiefly in their numerous narrow leaflets. I saw, however, in the Paris Herbarium a plant from S. Paolo and Minas Geraes, with leaflets 1-1½ inch long, and 3-5 lines broad, which I had not leisure to examine, but which was probably referrible to the species.

Series 2. *Triptolemeæ gerontogæ (hermaphroditæ)*.

4. *D. RIMOSA* (*Roxb. Fl. Ind.* iii. p. 233), fruticosa, foliolis 5-9 ovali-ellipticis obtusis mucronatisve crebre subparallele venulosis subtus inflorescentiaque puberulis, cymis dichotomis floribundis, floribus minimis subsessilibus, calycis laciniis obtusis tubo brevioribus, petalorum unguibus brevissimis, ovario glabro, stylo brevi.—*Wight, Ic. t.* 262.—*Habitu et floribus D. variabili* similis, sed etiam in floribus sterilibus ovula semper adesse videntur. Foliola 2-2½-pollicaria, rarius minora in ramis sterilibus nonnunquam duplo majora, subcoriacea, insigniter venulosa, supra glabra. Cymæ corymboso-paniculatæ v. inferiores axillares. Flores 1-1½ rarius fere 1½ lin. longi. Stamina 10. Ovarium breve stipitatum, 1-2-ovulatum. Legumen 2-3-pollicare, monospermum, 1 poll. latum, apice rotundatum, ad semen valde reticulatum, rarissime 2-spermum vidi, 4-pollicare.

Hab. Northern India, Silhet and Khasiya, *Roxburgh, Wall. Cat.* n. 5853, *Hooker and Thomson*; Assam, *Jenkins*; Sikkim Terai, *J. D. Hooker*.

5. *D. CUMINGII* (*Benth. in Pl. Jungh.* v. i. p. 255, in adnot.), fruticosa? foliolis 5-9 ovalibus obtusis emarginatis crebre reticulato-venulosis subtus inflorescentiaque puberulis, cymis dichotomis floribundis, floribus minimis subsessilibus, calycis laciniis obtusis tubo sublongioribus, petalorum unguibus brevissimis, ovario subglabro, stylo brevi.—*D. rimosæ* similis. Foliola minora (1-1½-pollicaria), venis magis reticulatis, primariis a costa divergentibus utrinsecus 6-10 seu ultra 30, flores adhuc minores (vix lineam longi), calycibus profundius fissis. Stamina 10. Legumen non visum.

Hab. Philippine Islands, *Cuming*, n. 1244.

This may ultimately prove to be only a variety of *D. rimosa*.

- β, *Zollingeriana*, ramulis, petiolis inflorescentiaque pubescenti-hirtis.—

D. Zollingeriana, *Miq. Fl. Ned. Ind.* v. i. p. 130.

Hab. Java, *Zollinger*. n. 3041.

6. *D. EMIRNENSIS*, sp. n., arborea, foliolis 7-11 ovatis ellipticisve subtus petiolisque ferrugineo-pubescentibus, cymis dichotomis floribundis subterminalibus, floribus minimis subsessilibus, calycis laciniis obtusis tubo brevioribus, petalis sessilibus, ovario pilosulo, stylo brevissimo.—Foliola subpollicaria venulosa. Flores linea breviores. Calycis laciniæ maximæ alte coalitæ, omnes ovatæ. Petala calycem breviter superantia. Stamina 10. Legumen non visum.

Hab. Madagascar, near Ramassina, prov. Emirna, *Bojer*.

Very near *D. rimosa*, but with very much smaller flowers, and smaller leaves.

- 7? *D. THOMSONI*, sp. n., glabra, foliolis 9-11 obovali-oblongis obtusis retusisve glabris subtus pallidis tenuiter venulosis, cymis dichotomis floribundis glabris, floribus minimis breviter pedicellatis, calycis laciniis obtusis tubo brevioribus, petalis subsessilibus, ovario pilosulo, stylo brevi, legumine apice contracto ad semen leviter venoso.—Affinis *D. Junghuhnii*. Foliola pauciora, majora pollicaria v. paullo longiora. Pedicelli evidentiores, raro tamen lineam longi. Flores $1\frac{1}{4}$ lin. Calycis dentes omnes lati et obtusi, laterales minores, infimus sublongior. Petala calyce paullo longiora. Stamina 9 in phalanges 2 disposita. Ovula 2. Legumen acinaciforme, bipollicare, medio 9 lin. latum, margine carinali valde arcuato.

Hab. Upper Assam, *Griffith*; Khasiya, *Hooker & Thomson*.

8. *D. JUNGHUHNII* (*Benth. in Pl. Jungh.*, i. p. 254), foliolis 11-15 elliptico-oblongis obtusis glabris v. subtus petioloque puberulis tenuiter venosis, cymis dichotomis floribundis tomentoso-pubescentibus, floribus minimis breviter pedicellatis, calycis laciniis obtusiusculis tubo æquilongis, petalis subsessilibus, ovario glabro, stylo brevi.—Foliola 6-9 lin. longa, 3-4 lin. lata. Flores $1\frac{1}{2}$ lin. longi. Stamina 9 (v. 10?), monadelphæ. Legumen non visum.

Hab. Sumatra, *Junghuhn*; Malacca, *Griffith*.

- 9? *D. PARVIFLORA* (*Roxb. Fl. Ind.*, iii. p. 225), foliolis 7-9 lato-lanceolatis glabris, paniculis (cymis?) terminalibus corymbiformibus, bracteis rotundatis ciliatis, floribus minimis, staminibus monadelphis, legumine falcato 1-2-spermo. Cætera ignota.

Hab. Moluccas, *Roxburgh*.

I have seen no specimen. From Roxburgh's very short character, it is probably near the *D. Junghuhnii*. Should it prove identical, Roxburgh's name has the preference.

10. *D. HOSTILIS*, sp. n., spinis axillaribus, foliolis 15-19 elliptico-oblongis obtusis glabris v. subtus petiolisque pilosulis tenuissime venulosis, cymis dichotomis tomentoso-pubescentibus floribundis, floribus minimis subsessilibus, calycis laciniis obtusis tubo brevioribus, petalis subsessilibus, ovario glabro, stylo brevissimo.—*D. Junghuhnii* valde affinis. Differt axillis spina semipollicari (pedunculo abortivo?) armatis, foliolis numerosioribus $\frac{1}{2}$ -1 poll. longis (maxima cujusve folii

raro 15-16 lin. longa), venis tenuioribus. Flores $1\frac{1}{2}$ lin. longi. Calycis dentes 4 ovati obtusi, infimus lanceolatus paullo longior. Vexillum obovatum, calyce duplo longius. Stamina 9, monadelpha. Legumen non visum.

Hab. Tropical Africa at Abeakouta in Guinea, *Irving*.

11. *D. ARMATA* (*E. Mey. Comm. Pl. Afr. Austr.* p. 152), foliolis 13-25 parvis anguste oblongis obtusis glabris subtus discoloribus, cymis confertis dichotomis floribundis rufo-tomentellis, floribus parvis breviter pedicellatis, calycis dentibus 4 summis obtusis, petalis breviter unguiculatis, ovario puberulo, stylo brevissimo.—*D. myriantha*, Meisn. in *Lond. Journ. Bot.* ii. p. 100.—Frutex ramosissimus, subscandens, inflorescentia excepta glaber, ramulis hinc inde semiabortivis spinescentibus. Foliola conferta, 3-4 lin. longa. Flores fere 2 lin. longi. Ungues petalorum minus abbreviati quam in speciebus præcedentibus et stamina fere isadelphæ, et species inter *Triptolemeis* et *Sissois* subintermedia, inflorescentia priorum. Legumen 1-2 poll. longum, 4-6 lin. latum, 1-2-spermum, glaberrimum, ad semina paullo incrassatum et tenuissime reticulatum.

Hab. South Africa, near Port Natal, *Drège*, *Krauss*, n. 220, *Peddie*, *Plant*, *Gueinzus*, etc.

12. *D. MULTIJUGA* (*E. Mey. Comm. Pl. Afr. Austr.* p. 153), foliolis 21-33 oblongis obtusis mucronulatis subtus petiolis ramulisque ferrugineo-pubescentibus, cymis brevibus (floribus subsessilibus?), legumine ferrugineo-pubescente.—Foliola conferta, subsemipollicaria, supra parce pilosula. Flores ignoti. Legumen longe stipitatum, monospermum, 2-pollicare, medio 8-9 lin. latum, apice basique angustatum, ad semen ut in *Triptolemeis* veris insigniter reticulatum.

Hab. South Africa, near Morley, *Drège*.

13. *D. MILLETTI*, sp. n., scandens, foliolis 25-35 parvis lineari-oblongis obtusis retusisve glabris, cymis axillaribus brevibus glabris v. minute puberulis, floribus parvis subsessilibus, calycis dentibus obtusis, petalis brevissime unguiculatis, ovario pilosulo, stylo breviter subulato.—*D. polyphylla*, Benth. *Pl. Jungh.* i. p. 256, in adnot. quoad plantam Chinensem.—Tota glabra v. pubes minuta ad petiolos et inflorescentiam. Foliola 4-6 lin. longa. Cymæ graciles, folio multo breviores. Flores vix 2 lin. longi. Vexillum subsessile. Ovula 3. Legumen monospermum, $1\frac{1}{2}$ -2 poll. longum, 7-8 lin. latum, ad semen induratum et rugosum.

Hab. South China, *Millett*; frequent in Hong-Kong, *Champion*, *Hance*, *Wright*, *Wilford*.

Having formerly seen it in fruit only, I had confounded it with the *D. polyphylla* from the Philippines, which I had seen in flower only, and which it much resembles in foliage; but now that I have numerous specimens in good flower, it proves to be quite distinct. An indifferent specimen from Borneo, *Motley*, appears to be the same species.

Series 3. *Sissoæ Americanæ seu Miscoleobia.*

[The difference, especially in inflorescence, between the American *Sissoos* and *Triptolemeas* is much more marked than in the Asiatic and African ones.]

14. *D. MISCOLOBIUM* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 11-21 ovatis oblongisve coriaceis subaveniis glabris, calycis laciniis inferioribus acutis, staminibus 10, vexillari libero, ovario biovulato.—*Miscoleobium violaceum*, Vog. Linnæa, xi. p. 201; *Benth. in Ann. Mus. Vind.* ii. p. 103, excl. syn. Vell. *M. nigrum*, Mart. Herb. Fl. Bras. n. 1126.—Arbor. Specimina siccitate nigricant. Foliola obtusa v. retusa, nunc ovata pollicaria et longiora, nunc oblonga et dimidio minora. Paniculæ folio breviores, fusco-pubescentes. Flores 4-5 lin. longi, pedicello 1-1½ lin. longo. Petala longiuscule unguiculata. Legumen vulgo monospermum, 1½-2 poll. longum, 7-8 lin. latum, glabrum.

Hab. Brasil, prov. San Paulo, Minas Geraes, Bahia, and Piahy (*Gardner*, n. 2459; *Blanchet*, n. 2874).

15. *D. SPRUCEANA* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 7-11 ovatis oblongisve coriaceis tenuiter venulosis glabris, calycis laciniis inferioribus acutis, staminibus 10, vexillari subsoluto, ovario 10-12-ovulato.—*Miscoleobium Spruceanum*, *Benth. Pl. Spruce exs.*—Arbor. Specimina ut in *D. miscoleobio* siccitate nigricant, et inflorescentia pariter fusco pubescens. Foliola paullo majora, 1-2-pollicaria. Flores majores. Staminum tubus postice fissus ut in *Dalbergiariis*. Ovis numerosis ab omnibus differt. Legumen nunc monospermum et 2-pollicare, nunc 3-4-spermum, usque ad 4 poll. longum, 6-7 lin. latum.

Hab. North Brasil, *Spruce*.

16. *D. CALYCINA*, sp. n., foliolis 5-7 longe petiolulatis ovato-oblongis acuminatis coriaceis basi angustatis glabris, racemis subsimplicibus, calycis pedicellati basi longe attenuati laciniis inferioribus acutis, staminibus 9 (v. 10?) monadelphis, ovario glabro 4-6-ovulato.—Ramuli et folia glabra. Foliola 1½-2-pollicaria, petiolulo 2-3 lin. longo, per anthesin vix evoluta, demum ut videtur coriacea. Racemi ad bases innovationum 1-2-pollicares, laxiflori, uti calyces tomento brevi rufescentes. Pedicelli 2 lin. longi. Calyx rufo-pubescent, fere 4 lin. longus, laciniis summis alte connatis obtusiusculis. Vexillum 6 lin. longum, ungue brevi. Antheræ generis. Legumen junius vidi bispermum, maturum deest.

Hab. Guatemala, *Friedrichsthal*.

17. *D. GLANDULOSA* (*Benth. in Mart. Fl. Bras. Leg. ined.*), ramulis inflorescentiaque glanduloso-pubescentibus, foliolis 21-29 oblongo- v. lanceolato-ovatis acutis rigidis utrinque pubescentibus, calycis laciniis omnibus acutis, staminibus 10 monadelphis.—Foliola majora pollicem longa, 5 lin. lata, superiora decrescentia et angustiora, omnia rigidula.

Panícula terminalis laxa, ramulis irregulariter paniculato-ramosis. Flores subsessiles, circa 3 lin. longi. Legumen viscoso-pubescent, 6 lin. latum.

Hab. Brasil, prov. Minas Geraes.

18. *D. ACUTA* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 15-25 lanceolatis v. ovato-lanceolatis margine revolutis utrinque ramulis inflorescentiaque molliter villosis, calycis laciniis omnibus acutis, staminibus 10 monadelphis.—Foliola 6-9 lin. longa. Flores in paniculis brevibus conferti, 4 lin. longi. Ovarium villosissimum, ovulis 4.

Hab. Brazil, prov. Minas Geraes.

19. *D. CUJABENSIS* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 15-21 oblongis obtusis utrinque ramulis inflorescentiaque molliter velutino-pubescentibus, calycis laciniis 3 inferioribus acutis, staminibus 10 monadelphis. Foliola fere pollicaria v. foliorum superiorum semipollicaria. Flores subsessiles, 3 lin. longi. Ovarium villosissimum, ovulis circa 3. Legumen 1-1½ poll. longum, 6 lin. latum, molliter pubescens.

Hab. Brasil, prov. Mattogrosso.

20. *D. AMERIMNUM*, foliolis solitariis ovatis acuminatis subcordatis glabris v. subtus tenuiter puberulis, racemis brevibus axillaribus laxis subpaniculatis, calycis pedicellati dentibus obtusis, staminibus 10 monadelphis.—*Amerimnum Brownei*, Sw. Fl. Ind. Occid. p. 1234. *Amerimnum strigulosum*, II. B. et K. Nov. Gen. et Sp. vi. p. 389?—Arbor partibus novellis puberulis. Folia adulta sæpius glabra. Foliolum 2-3-pollicare, demum subcoriaceum. Pedicelli 1-2 lin. longi. Flores albi, circa 4 lin. longi. Ovarium stipitatum, pilosulum, ovulis 4-5. Stylus subulatus. Legumen nunc monospermum, 6-9 lin. longum, nunc 3-4-spermum, 1½-2-pollicare, circa 5 lin. latum, glabrum, venulosum v. demum leviter incrassatum et læve.

Hab. Tropical America, Jamaica, St. Domingo, and other West Indian islands; in Central America, *Sinclair, Cuming*, n. 1318, *Oersted*; Tumaco in Columbia, *Hinds*; Cumana, *Funcke*, n. 583; Maracaybo, *Moritz*, 1266, and on the Orinoco if the synonym of *A. strigulosum* be correct.

21. *D. NIGRA* (*Allem., Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 17-25 oblongis obtusis retusisve subtus pilosulis, ramulis inflorescentiaque minute tomentellis, racemis brevibus laxis subramosis, calycis pedicellati laciniis superioribus obtusis infima productiore, staminibus 10 monadelphis.—*Pterocarpus niger*, Vell. Fl. Flum. vii. t. 91. *Miscolobium nigrum*, Allem. Trab. Soc. Vell. p. 66, non Mart. et excl. syn. Vog.—Arbor. Foliola in speciminibus florentibus vix perfecte evoluta 4-5 lin. longa. Inflorescentia et flores omnino *D. Amerimni*. Ovula tamen duo tantum in ovario.

Hab. Brazil, prov. Minas Geraes (and Rio Janeiro?).

This, according to Allemão (whose specimens have been kindly lent to

me by Mr. Miers), is the tree which supplies the greater part of the *bois de Palissandre* or *Rose-wood* for the European market.

22. *D. CAMPECHIANA*, foliolis 7-19 oblongis obtusissimis retusisve subtus ramulis inflorescentiaque tenuiter pubescentibus glabratissive, paniculis brevibus subcymosis, calycis pedicellati dentibus obtusis, staminibus 10 monadelphis.—*Robinia glabra*, Mill., D.C. Prod. ii. p. 262.—Arbor. Foliola pollicaria v. minora, more *D. variabilis* supra venulosa, at semper obtusissima v. emarginata. Paniculæ sessiles v. breviter pedunculatæ, densifloræ. Flores fere *D. Amerimni*, at minores. Ovarium semper 3-ovulatum vidi. Legumen glabrum, monospermum $1\frac{1}{2}$ poll., 2-3-spermum 2-3 poll. longum, 5-6 lin. latum, ad semina leviter induratum, basi in stipitem brevem angustatum.

Hab. Central America, forests of Campechy in Yucatan, *Herb. Banks, Linden*, n. 1329, *Johnson*, n. 27, South Mexico, *Jurgensen*, n. 226.

23. *D. GLAUDESCENS* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 11-19 ovali-oblongis obtusis retusis v. vix mucronatis novellis sericeis demum glabratiss, racemis ramosis confertifloris summis paniculatis, floribus parvis brevissime pedicellatis, calycis laciniis superioribus obtusis infima productiore, staminibus 10 subisadelphis.—*Miscolobium glaucescens*, Mart.; *Benth. in Ann. Mus. Vind.* ii. p. 103.—Scandens? Foliola majora pollicaria, rarius dimidio minora. Flores vix $2\frac{1}{2}$ lin. longi, violacei. Stamina in floribus examinatis in phalanges 2 disposita, nunc $\frac{5}{8}$, nunc $\frac{6}{4}$. Legumen sesquipollicare, junius pubescens subglandulosum, demum glabrum.

Hab. Brasil, prov. Minas Geraes and Bahia (*Blanchet*, n. 3867).

24. *D. LATERIFLORA* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 15-21 oblongis obtusis subtus sericeo-pubescentibus, racemis brevibus confertis subpaniculatis, calycis brevissime pedicellati laciniis omnibus obtusis vix inæqualibus, staminibus 10 monadelphis v. vexillari subso-luto.—*D. nigræ* affinis, differt indumento, pedicellis abbreviatis, floribus paullo minoribus, calycis dente infimo vix productiore. Ovula 3-4. Legumen non visum.

Hab. Brasil, prov. Minas Geraes.

25. *D. DENSIFLORA* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 15-27 ovali-oblongis mucronulatis subtus ramulis inflorescentiaque pubescenti-villosis, paniculis densis fasciculato-ramosis, calycis laciniis omnibus ovatis vix inæqualibus, staminibus 10 monadelphis.—*Miscolobium densiflorum* et *M. divaricatum*, *Benth. in Ann. Mus. Vind.* ii. p. 104.—Foliola pleraque 7-9 lin. longa, circa 4 lin. lata, rarius subpollicaria. Cymæ fasciculiformes, densæ, secus ramos paniculæ confertæ. Flores subsessiles, 3 lin. longi. Calyx dense villosus. Ovarium villosum, ovulis 3. Legumen non visum.

Hab. Brasil, prov. Goyaz.

26. *D. FOLIOLOSA* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 13-21 elliptico-oblongis obtusis v. rarius mucronulatis subtus pallidis

junioribus ramulis inflorescentiaque pubescentibus, paniculæ ramis brevibus laxiusculis, calyce villosa, staminibus 9 monadelphis.—*Miscolobium polyphyllum*, Benth. in Ann. Mus. Vind. ii. p. 103.—Arbor parva. Foliola $\frac{3}{4}$ –1-pollicaria v. rarius $1\frac{1}{2}$ poll. longa. Paniculæ folio breviores. Pedicelli brevissimi. Flores circa 4 lin. Ovula 2–3. Legumen 1– $1\frac{1}{2}$ -poll. longum, 5–7 lin. latum, monospermum, tenue, nec ad semen induratum.

Hab. Brasil, prov. Rio Janeiro and Minas Geraes.

27. *D. VILLOSA* (Benth. in Mart. Fl. Bras. Leg. ined.), foliolis 15–27 ovali-ellipticis oblongisve obtusis retusisve rarius mucronulatis subtus ramulis inflorescentiaque villosis, paniculis densis fasciculato-ramosis, calycibus villosis, staminibus 9 monadelphis.—*Miscolobium villosum*, Benth. in Ann. Mus. Vind. ii. p. 104.—*D. densifloræ* valde affinis. Foliola obtusiora. Flores paullo minores et stamen vexillare constanter deesse videtur. Legumen non visum.

Hab. Brasil, prov. Minas Geraes.

28. *D. GRACILIS* (Benth. in Mart. Fl. Bras. Leg. ined.), foliolis 15–27 anguste oblongis obtusis subtus vix pilosulis, ramulis inflorescentiaque minute tomentellis, panicula terminali floribunda ramis elongatis, floribus parvis, calyce glabro, staminibus 9 monadelphis.—Arbor ramis gracilibus subscandentibus. Foliola 4–6 lin. longa. Flores circa 2 lin. longi. Ovarium glabrum v. basi pilosulum, ovulis 2. Legumen junius longe stipitatum, monospermum.

Hab. Brasil, prov. Mattogrosso.

Series 4. *Sissoæ Gerontogææ*.

29. *D. LATIFOLIA* (Roxb. Pl. Corom. ii. p. 7. t. 113), glabra, foliolis 3–7 longe petiolulatis orbiculatis v. latissime obovatis obtusissimis retusisve, paniculis lateralibus subpaniculatis laxis, calycis pedicellati glabri laciniis obtusiusculis, petalis longiuscule unguiculatis, staminibus 9 monadelphis, stylo subulato.—Wight, Ic. iii. t. 1156. *D. emarginata*, Roxb. Fl. Ind. iii. p. 224.—Foliola sæpius 5 v. 6, alterne dissita, $1\frac{1}{2}$ -pollicaria, ad petiolulum 3–4 lin. longum breviter acutata. Paniculæ graciles, infrafoliaceæ v. rarius axillares, folio breviores. Flores $2\frac{1}{2}$ v. fere 3 lin. longi, pedicelli 1– $1\frac{1}{2}$ lin. Bracteolæ membranaceæ, longe ante anthesin caduæ. Petalorum unguis tubum calycis subæquantes. Ovarium glabrum, ovulis sæpius 3. Legumen monospermum $1\frac{1}{2}$ -pollicare, 3-spermum 3-pollicare, circa 6 lin. latum, vix tenuissime reticulatum.

Hab. East Indian Peninsula and Central India from Bombay (*Jacquemont*, etc.) to Bundelkund, *Edgeworth*; and Behar, *J. D. Hooker*; also in Sikkim, *J. D. Hooker*; and in the Andaman Islands, *Roxburgh*.

30. *D. JAVANICA* (Miq. Fl. Ned. Ind. i. p. 132), glabra, foliolis circa 7 longe petiolulatis late obovatis brevissime acuminatis, panicula terminali laxe subcymosa foliis breviora, calycis pedicellati glabri

laciniis obtusiusculis.—*D. latifoliæ* valde affinis, differre videtur imprimis foliolis breviter acuminatis nec retusis et inflorescentia. Specimen tamen unicum floribus apertis caret. Foliola $1\frac{1}{2}$ -pollicaria, petiolulo 4-5-lineari. Pedicelli 1 lin. longi. Calyx omnino *D. latifolii*.

Hab. Java, *Horsfield*.

31. *D. CULTRATA* (*Grah. in Wall. Catal.* n. 5861), glabra, foliolis 7-11 obovali-ellipticis obtusissimis retusisve, paniculis lateralibus subfasciculatis laxis brevibus, calycis pedicellati glabri laciniis acutis, staminibus 9 monadelphis, stylo subulato.—Foliola pleraque $1\frac{1}{2}$ -pollicaria v. paullo longiora, fere pollicem lata, ad petiolulum vix 2 lin. longum minus acutata quam in *D. latifolia*, venulis crebrioribus tenuioribus. Inflorescentia *D. latifoliæ*; flores paullo minores, pedicello sublongiore. Petalorum unguis calycis tubo paullo breviores. Ovarium glaberrimum, ovulis 3. Legumen monospermum $1\frac{1}{2}$ -poll., 3-spermum 4 poll. longum, 6-7 lin. latum, ad semina vix induratum.

Hab. Burma. Prome and Troglia Hills, *Wallich*, n. 5861 & 5847 B; Rangoon, *MacClelland*.

32. *D. SISOIDES* (*Grah. in Wall. Catal.* n. 5876), glabra, foliolis 5-7 ovali-ellipticis obtusis v. acutiusculis, paniculis laxis terminalibus foliatis v. axillaribus, calycis pedicellati laciniis omnibus obtusis, petalis longiuscule unguiculatis, staminibus 9 monadelphis, stylo subulato.—*D. latifoliæ* valde affinis, differt imprimis foliolis angustioribus brevius petiolatis et inflorescentia. Foliola sæpius $1\frac{1}{2}$ -pollicaria raro pollicem lata. Flores quam in *D. latifolia* paullo majores, calycis laciniis obtusioribus. Ovarium glabrum, ovulis 4. Legumen non visum.

Hab. Nilgherry Hills, *Noton*.

Like the *D. javanica*, this species requires further comparison with the *D. latifolia* when more complete specimens shall have been obtained.

33. *D. CHAMPIONI* (*Thwaites, Enum. Pl. Ceyl.* p. 95), scandens, glabriuscula, foliolis 2-5 ovatis acuminatis coriaceis nitidis, paniculis laxis folia subæquantibus, calycis pedicellati vix puberuli dentibus æquilongis obtusis v. infimo acutiusculo, petalis longiuscule unguiculatis, staminibus 9 monadelphis, stylo subulato.—Foliola maxina 3-4 poll. longa, 2 $2\frac{1}{2}$ poll. lata, acumine abrupte obtuso, interdum 2 poll. longa et vix 1 poll. lata, utrinque glabra et concoloria, v. juniora minute puberula. Paniculæ irregulariter subcymosæ. Pedicelli 1- $1\frac{1}{2}$ lin. longi. Flores circa 3 lin. v. paullo longiores. Calyx ovato-campanulatus, rubens. Petalorum unguis calyce paullo breviores. Ovarium puberulum. Ovulum constanter unicum vidi, dum in cæteris *Sissois Gerontogeis* 3-4 v. in paucis speciebus 2 inveni. Legumen breviter stipitatum, 3-4 poll. longum, circa 9 lin. latum, medio ad semen corrugatum.

Hab. Ceylon, *Thwaites*, n. 761 & 772; *Gardner*, n. 245; *Walker, Champion*; Borneo, *Motley*, n. 213.

D. pseudo-Sissoo, Miq. Fl. Ned. Ind. i. p. 128, appears from his description to be the same plant as the *D. Championi*; and if so, his name, however unfortunately selected, should be adopted as having the right of priority. I have not, however, ventured to do so without seeing his specimens, as he does not mention the number of ovules in the ovary.
Hab. Java and Borneo.

34. *D. Sissoo* (Roxb. Fl. Ind. iii. p. 223), arborea, pubescens v. demum glabrescens, foliolis 3-5 orbiculato-subrhombeis acuminatis, paniculis brevibus axillaribus subcymosis puberulis, calycis subsessilis angusti dentibus summis obtusis, petalis longiuscule unguiculatis, staminibus 9 monadelphis, stylo brevissimo.—*D. pendula*, Ten. Cat. Hort. Neap. p. 84.—Foliolum terminale sæpius bipollicare, lateralia minora, dissite alterna, rhachi flexuosa, utrinque concoloria, novella molliter pubescentia, mox glabrata. Cymæ simplices et paucifloræ v. in paniculas parvas folio semper breviores dispositæ. Flores circa 4 lin. longi. Calycis dentes breves lati, ciliati, 2 summi coaliti. Petalorum unguis calycis tubum subæquantes. Ovarium pilosulum, ovulis 2-4. Legumen monospermum $1\frac{1}{2}$ -2-pollicare, 3-spermum 3-3 $\frac{1}{2}$ -pollicare, 4-5 lin. latum, basi in stipitem longe angustatum, læve v. vix reticulatum.

Hab. East India, from the Peninsula, Beloochistan, *Stocks*, n. 425, and Affghanistan, *Griffith*, n. 1183, to the Himalayas, where it is common in river-beds (*Edgeworth*, *Jacquemont*, *Winterbottom*, &c.), and Sikkim, *J. D. Hooker*; abundant in the plains of Central India.

35. *D. OBOVATA* (*E. Mey. Comm. Pl. Afr. austr.* p. 152), foliolis 5-7 obovatis oblongisve obtusis (rarius acutiusculis?) rigidulis reticulato-venosis glabriusculis, cymis confertis paniculatis ferrugineo-tomentosis ultimis subcapitatis, calycibus sessilibus angustis dentibus obtusissimis, petalorum unguibus tubo brevioribus, staminibus 10 monadelphis, stylo breviter subulato.—*Podiopetalum reticulatum*, Hochst. Flora, 1841, p. 658.—Frutex ramulis novellis petiolis paniculisque ferrugineo-tomentosis. Folia adulta glabrescentia. Foliola 1-1 v. raro 2 poll. longa, 6-9 lin. lata, pleraque obtusissima, insigniter venosa. Inflorescentia fere *D. confertifloræ*. Flores quam in *D. Sissoo* minores, vix 3 lin. longi. Calyx subtubulosus. Vexillum ovatum. Ovarium longe stipitatum, villosulum, ovulis circa 4. Legumen monospermum, stipitatum, 1-2 poll. longum, apice basique acutatum, medio 6 lin. latum, ad semen magnum ut in *Triptolemeis* insigniter reticulatum.

Hab. South Africa, near Port Natal, *Drège*; *Krauss*, n. 193.

This is one of the species that connect the *Sissoos* with the *Triptolemeas*.

36. *D. OVATA* (*Grah. in Wall. Catal.* n. 5854), glabra, foliolis 5-7 ovatis obtuse acuminatis subcoriaceis, paniculis laxiusculis folio paullo brevioribus, calycis brevissime pedicellati ovati dentibus omnibus obtusis, petalis longiuscule unguiculatis, staminibus 9 monadelphis,

stylo subulato.—*D. glauca*, Wall. Catal. n. 5862.—Arbor? Foliola fere *D. Championi*, 2–3 poll. longa, $1\frac{1}{2}$ –2 poll. lata, longiuscule petiolulata. Panícula terminalis, lata, laxè corymbosa. Flores vix 3 lin. longi. Calyx glaberrimus, dente infimo cæteris latiore nec more solito angustiore. Petalorum unguës calyce paullo breviores. Alæ et carina hinc calcarato-auriculatæ. Ovarium glaberrimum, ovulis 4. Legumen subglaucescens monospermum subbipollicare, 3-spermum 4-pollicare, 6–7 lin. latum, ad semen tenuiter reticulatum.

Hab. Moolmyne, *Wallich*, *Lobb*.

37. *D. FOLIACEA* (*Wall. Catal.* n. 5856 litt. A, C et D), arborea, foliolis 9–13 elliptico-oblongis obtusis retusis v. breviter acuminatis glabris v. subtus inflorescentiaque pubescentibus, panícula terminali late cymosa, calycibus subsessilibus latis dentibus superioribus obtusis, petalis longiuscule unguiculatis, staminibus 9 monadelphis, stylo breviter subulato.—*D. ovata* affinis, imprimis foliis diversa. Foliola variant 2 poll. longa et $\frac{3}{4}$ poll. lata usque ad 4 poll. longa et $1\frac{1}{2}$ poll. lata, apice omnia obtusa v. retusa, v. nonnulla breviter et obtuse acuminata; petiolulus brevis; costa subtus valde prominens venis primariis tenuibus distantibus. Flores 2 lin. v. paullo majores. Petalorum unguës calycis tubo paullo breviores. Ovarium glabrum v. pilosulum, ovulis 2. Legumen fere *D. rimosæ* sed longius, usque ad 4 poll. longum et fere 1 poll. latum, medio ad semen magnum insigniter reticulatum.

Hab. Moolmyne et Prome, *Wallich*; Rangoon, *MacClelland*.

This is another of the species which nearly connects the *Sissoos* with the *Triptolemeas*, having the pod of the latter, with the flowers of the former.

38? *D. DISCOLOR* (*Miq. Fl. Ned. Ind.* i. p. 130), foliolis circa 16, late v. obovato-ellipticis vulgo emarginatis supra puberulis nitidis subtus discoloribus pubescentibus, cymis axillaribus terminalibusque corymboso-confertis, floribus subsessilibus.—Foliola vulgo $1\frac{1}{4}$ poll. æquantia, coriaceo-membranacea, venis teneris at distinctis. Legumen stipitatum, monospermum, fere 2-pollicare, 5–6 lin. latum, raro dispersum angustius et longius.

Hab. Borneo, south coast.

This species is unknown to me, and has only been seen by Miquel in fruit. From his incomplete description it would appear to be allied to the *D. foliacea*.

39. *D. CONFERTIFLORA* (*Benth. in Pl. Jungh.* i. p. 255 in adnot.), scandens, foliolis 11–15 oblongis obtusis retusisve glabris venis tenuibus, panícula pyramidata tomentosa cymis ultimis subcapitatis, calycis sessilis dentibus obtusis, vexilli ungue calycis tubo brevior, ovario hirsuto, stylo breviter subulato, staminibus 9 monadelphis.—A *D. sympathetica* differt foliolis majoribus, a *D. volubili* staminum tubo postice integro. Foliola 1– $1\frac{1}{2}$ -pollicaria breviter petiolulata venis vix conspi-

cuis. Cymæ numerosæ in paniculam amplam subaphyllam dispositæ. Flores circa $2\frac{1}{2}$ lin. longi. Petalorum unguis calycis tubo paullo breviores. Ovarium hirsutum, ovulis 3-4. Legumen non visum.

Hab. East India, Sillet and Oude, *Wallich, Catal.* n. 5848 E & I, mixed, however, with the *D. monosperma*; Concan, *Stocks*.

40. *D. SYMPATHETICA* (*Nimmo, Benth. in Pl. Jungh.* p. 255 in adnot.), scandens, foliolis 11-15 obovali-oblongis obtusissimis emarginatis crebre venulosis junioribus utrinque ramulisque pubescentibus, cymis axillaribus densifloris, calycis brevissime pedicellati laciniis superioribus obtusis, vexilli ungue calycis tubo brevior, staminibus 9 monadelphis, ovario villosa, stylo brevi.—*D. ferruginea*, Hochst. Pl. Canar. exs. n. 343, non Roxb.—Caulis alte scandens, ramis sæpe valde intricatis curvatisque, novellis pubescentibus. Foliola vulgo semipollicaria v. breviora, maxima rarius pollicaria, læte-virentia, ætate glabrescentia v. plus minus pubescentia. Paniculæ axillares, folio breviores, a basi cymæformes, floribundæ. Flores 2 lin. longi. Ovarium longe hirsutum, ovulis 3-4. Legumen monospermum $1\frac{1}{2}$ -2-pollicare, 7-8 lin. latum, rarius dispermum 3-pollicare, et interdum fere 1 poll. latum, puberulum v. glabrescens, ad semina leviter reticulatum.

Hab. East Indian Peninsula, *Wight, G. Thomson, &c.*; Concan, *Stocks*; Bombay, *Nimmo, Dalzell*.

41. *D. STOCKSII*, sp. n., scandens, foliolis 11-17 obovatis v. late oblongis obtusissimis retusisve reticulato-venulosis novellis tomentosis, cymis in panicula subaphylla numerosis, calycis brevissime pedicellati dentibus superioribus obtusis, vexilli ungue calycis tubo brevior, staminibus 9 monadelphis, ovario glabro, stylo brevi, legumine ovato v. breviter oblongo.—*D. sympatheticæ* affinis, differt inflorescentia ante folia evoluta, ovario glaberrimo et legumine quam in omnibus *Dalbergiis* brevior. Foliola perfecte evoluta $\frac{3}{4}$ -1 poll. longa, 5-6 lin. lata, glabrata. Flores 2 lin. longi. Calycis dens infimus cæteris duplo longior, acutus. Legumen 1 poll. longum, 7-8 lin. latum, glaberrimum, sæpius glaucescens, reticulatum, basi in stipitem 2-4 lin. longum angustatum. Semen unicum, maximam partem leguminis occupans.

Hab. Concan, *Stocks*.

Some of these specimens show in a remarkable degree the progressive development of the leaflets, the lowest of each leaf being often 6 lines long and 4 or 5 broad before the upper ones have begun to unfold.

42. *D. GARDNERIANA* (*Benth. in Pl. Hohen. exs.*), scandens, foliolis 7-11 oblongis ellipticisve obtusis retusisve coriaceis supra glabris creberrime venulosis subtus petiolisque rufo-villosis, cymis axillaribus sessilibus, calycis subsessilis rufo-villosi dentibus superioribus obtusis, petalis longe unguiculatis, staminibus 9 monadelphis, stylo subulato.—Foliola pleraque subpollicaria, supra nitidula, margine subrecurvo, petiolulo brevissimo. Flores 3 lin. longi. Petalorum unguis calyceem subæquantes. Ovarium villosum, ovulis 2. Legumen non visum.

Hab. Nilgherries, *Gardner, G. Thomson, Hohenacker, n. 1571.*

Referred by Gardner to the *D. rubiginosa*, from which it differs in the dense hairs of the under side of the leaves, the more sessile flowers, hairy ovary, &c.

43. *D. VELUTINA* (*Benth. in Pl. Jungh. i. p. 255 in adnot.*), foliolis 13-17 oblongo-ellipticis membranaceis supra puberulis subtus ferrugineo-velutinis, paniculis axillaribus lateralibusque folio brevioribus, calycis subsessilis ferrugineo-villosi dentibus superioribus obtusis, petalis longe unguiculatis, staminibus 10 monadelphis, ovario glabro, stylo subulato.—*D. stipulata*, Wall. Catal. n. 5868 (non *D. stipulacea*, Roxb.).—Tota molliter ferrugineo-tomentosa v. villosa. Stipulæ in ramulis novellis 6-8 lin. longæ, lanceolatæ, obtusæ. Foliola $1\frac{1}{2}$ -2-pollicaria, mollia, vix demum supra glabrescentia. Paniculæ floribundæ, ramis ultimis confertim cymosis. Flores fere 3 lin. longi. Petalorum ungues calycem æquantes v. subsuperantes. Ovula 2. Legumen non visum.

Hab. Eastern India; Khasiya, *Wallich, Griffith*; Mergui, *Griffith*; Moolmyne, *Wallich*; Rangoon, *MacLelland*.

44. *D. RUBIGINOSA* (*Roxb. Pl. Corom. ii. p. 9, t. 115*), scandens, foliolis 5-7 ovatis v. elliptico-oblongis obtusis coriaceis glabris v. subtus minute puberulis, paniculis brevibus axillaribus, calycis breviter pedicellati rubiginoso-tomentosi dentibus obtusis æqualibus, petalis longe unguiculatis, staminibus 9 monadelphis, ovario glabro, stylo subulato.—Foliola 1-2-pollicaria, iis *D. rimosæ* subsimilia, magis tamen coriacea venis vix conspicuis. Pedicelli 1 lin. longi. Flores 3 lin. Calyx fere 2 lin., rubiginoso-tomentosus v. villosus. Petalorum ungues calycem æquantes. Ovula 2-3.

Hab. East Indian Peninsula, *Wight*; Concan, *Stocks*; Circars, *Roxburgh*, and again in Hong-Kong in South China, *Hance, Wright, Wilford*, but not hitherto received from any intermediate station.

45. *D. CONGESTA* (*Grah. in Wall. Catal. n. 5872*), scandens, foliolis 5-7 ovali-cuneatis emarginatis crebre tenuiter venulosis novellis utrinque pubescentibus, cymis axillaribus dense capitatis, calycis subsessilis glabrescentis dentibus obtusis, staminibus 9 monadelphis, petalis longe unguiculatis, ovario glabro, stylo subulato.—Verosimiliter varietas est *D. rubiginosæ*. Ex specimine manco vix differre videtur nisi calycibus fere glabris, et foliolis minoribus angustioribus.

Hab. East Indian Peninsula, Nilgherries, *Noton*.

46. *D. Densa* (*Benth. in Lond. Journ. Bot. ii. p. 217*), scandens, foliolis 7-11 late oblongis v. ovali-ellipticis obtusissimis retusisve glabris v. subtus tenuissime pilosulis, paniculis brevibus axillaribus laxis vix puberulis, calycis breviter pedicellati glabri dentibus obtusis, petalis longe unguiculatis, staminibus monadelphis, stylo subulato.—Foliola $1\frac{1}{2}$ -pollicaria, tenuiter et crebre reticulato-venulosa. Pani-

culæ parum ramosæ, ramulis racemiformibus unilateralibus, v. breviter cymoso-ramosæ. Pedicelli 1 lin. Flores circa 2 lin. longi. Petalorum unguis calycem æquantes. Legumen non nisi junius vidi.

Hab. New Guinea, *Hinds*.

47. *D. HANCEI*, sp. n., scandens, foliolis 9–11 anguste oblongis utrinque obtusis novellis subtus pilosulis demum glabratis, paniculis brevibus axillaribus confertis puberulis, calycis subsessilis puberuli dentibus obtusis, petalis longe unguiculatis, staminibus 9 monadelphis, stylo breviter subulato.—A *D. densa* differt imprimis foliolis dimidio minoribus, inflorescentia densiore magis pubescente. Foliola 6–9 lin. longa. Racemi confertiflori, juniores squamis concavis imbricatis involuti, rhachi rufo-tomentosa v. pubescente. Pedicelli vix $\frac{1}{2}$ lin. longi. Flores fere 3 lin. Calyx latus, glabrescens, dentibus tubo multo brevioribus latis obtusissimisque. Ovarium glabrum. Legumen (vix maturum) $1\frac{1}{2}$ poll. longum, 4 lin. latum, apice rotundatum, basi in stipitem longe angustatum, ad semen vix induratum.

Hab. Hong-Kong, *Hance*, *Wilford*.

48. *D. TAMARINDIFOLIA* (*Roxb. Fl. Ind.* iii. p. 233), scandens, ferrugineo-pubescent, foliolis 25–40 anguste oblongis obtusis inæqualiteris, cymis brevibus densifloris, calycis subsessilis dentibus obtusis, petalis longe unguiculatis, staminibus monadelphis, ovario glabro, stylo subulato.—Wight, *Ic. t.* 242; *D. multijuga*, Grah. in Wall. Catal., n. 5865; *D. rufa*, Grah. in Wall. Catal., n. 5864; *D. Blumei*, Hassk. Pl. Jav. Rar., p. 400; *D. acaciæfolia*, Dalz. in Kew. Journ. Bot. ii. p. 37; *Derris pinnata*, Lour. Fl. Cochinch. p. 432.—Foliola 6–9 longa, 2–3 lin. lata, novella utrinque pubescentia v. villosa, adulta sæpe glabrescentia, variant tamen etiam adulta subtus dense rufo-villosa et minus inæqualia, v. demum glabra rigidula et valde inæqualia. Paniculæ cymosæ, 1– $1\frac{1}{2}$ -pollicares. Flores *D. densæ*, fere 3 lin. longi. Bracteolæ parvæ, latæ. Stamina 9, rarius 10. Ovula 2–3. Legumen $1\frac{1}{2}$ –3 poll. longum, 6–7 lin. latum, 1–2-spermum, ad semina vix induratum, glabrum, læve et sæpius rubens.

Hab. East India, in the Peninsula, *Wight*; Canara, *Dalzell*; Concan, *Stocks*; Nepal and Silhet, *Wallich*; Sikkim, *Hooker*; Assam, *Jenkins*; Penang and Moolmyne, *Wallich*, *Helfer*; Sumatra, *Marsden*; Java, *Zollinger*, n. 1754.

49. *D. POLYPHYLLA* (*Benth. Pl. Jungh.* i. p. 256 in adnot. excl. pl. Chinensi), scandens, foliolis 25–50 parvis linear-oblongis glabris v. parce pilosulis, cymis axillaribus brevibus pubescentibus, calycis subsessilis dentibus obtusis, petalis longe unguiculatis, staminibus monadelphis, ovario glabro, stylo longe subulato.—Foliola approximata, 4–6 lin. longa, subcoriacea, basi vix obliqua. Paniculæ cymosæ, confertifloræ. Flores 3 longi, iis *D. tamarandifoliæ* similes.

Hab. Philippine Islands, *Cuming*, n. 1164.

Series 5. *Dalbergariæ Gerontogææ*.

50. *D. PANICULATA* (Roxb. *Pl. Corom.* ii. p. 8. t. 114), arborea, foliolis 9–13 obovatis oblongis ovalibusve obtusissimis retusisve glabris, paniculis subcymosis axillaribus villosis, calycis subsessilis villosi dentibus acutis, vexillo angusto, staminibus isadelphis, ovario glabro.—Foliola vulgo circa 1 poll. longa, 8–9 lin. lata, apice rotundata, versus basin angustiora, variant majora v. minora, rarissime 2-pollicaria, nonnunquam obovata et basi acuta, rarissime basi quam apice latiora, adulta rigidula et utrinque insigniter villosa. Paniculæ per anthesin rufo-villosæ, breves, confertifloræ, fructiferæ laxiores et glabriores. Flores fere 3 lin. longi. Petala quam in sequentibus angustiora, unguibus calycis tubum æquantibus. Ovarium glaberrimum v. basi leviter ciliato-hirtum. Ovula 2–3. Legumen $1\frac{1}{2}$ – $2\frac{1}{2}$ poll. longum, 6–9 lin. latum, 1–2-spermum, apice basique angustatum.

Hab. East India; occurs in most collections from the Peninsula up to Bombay; also in Central India, *Edgeworth, Hooker*.

51. *D. ASSAMICA* (*Benth. in Pl. Jungh.* i. p. 255 in adnot.), scandens, puberula v. glabrescens, foliolis 15–21 dissitis oblongo-ellipticis obtusis retusisque, paniculis axillaribus laxis folio multo brevioribus, bracteis caducissimis, calycis pedicellati dentibus acutis summis brevissimis recurvis, vexillo lato, staminibus isadelphis, ovario hispido.—Petioli communes ut in *D. hircina* elongati, 8–10-pollicares. Foliola $1\frac{1}{2}$ v. fere 2 poll. longa, 8–10 lin. lata. Paniculæ laxæ, 4–6-pollicares. Pedicelli tenuis, 1– $1\frac{1}{2}$ lin. longi. Flores circa 3 lin. Calycis dentes 2 summi late recurvo-falcati, brevissime acutati, laterales parvi, infimus linearis elongatus. Petala *D. lanceolaria*. Ovarium breviter stipitatum, ovulis 4, stylo subulato. Legumen non visum.

Hab. Northern India, Assam, *Griffith, Jenkins*; Subsivaliks, *Edgeworth*.

52. *D. LANCEOLARIA* (*Linn., D.C. Prodr.* ii. p. 417), arborea, foliolis 11–15 ovalibus v. late oblongis obtusissimis retusisve glabris, paniculis subaphyllis rufo-pubescentibus laxis, calycis pedicellati dentibus summis obtusis, vexillo lato, staminibus isadelphis, ovario glabro v. basi villosulo.—Wight, *Ic.* t. 266; *D. frondosa*, Roxb. *Fl. Ind.* iii. p. 226; *D. zeylanica*, Roxb.? Wall. *Catal.* n. 5847 A; *D. arborea*, Heyne in *Roth. Nov. Pl. Sp.* p. 330.—Foliola 1– $1\frac{1}{2}$ -pollicaria, etiam novella glabra, longiuscule petiolulata. Paniculæ amplæ, per anthesin aphyllæ, e cymis laxiusculis constantes. Pedicelli fere lineam longi. Flores in genere majusculi, fere 5 lin. longi. Calycis turbinati dentes summi obtusi, laterales acutiusculi, infimus longior acutus. Vexillum obovatum, basi supra unguem ut in nonnullis affinis leviter incrassatum. Ovula 3. Legumen longe stipitatum, monospermum $1\frac{1}{2}$ –2 poll. longum, 2–3-spermum usque ad 4 poll. longum, 8–9 lin. latum, vix tenuissime reticulatum.

Hab. East Indian Peninsula, occurring in most collections, and extending southward to Ceylon and northward to Bombay, but not received from central, northern, or eastern India.

53. *D. HIRCINA* (*Ham. in Wall. Catal. n. 5871*), foliolis 13–19 ovalibus v. obovali-oblongis obtusissimis retusisve pubescentibus, cymis axillaribus brevibus densifloris, calycis breviter pedicellati villosi dentibus omnibus obtusis, vexillo lato, staminibus isadelphis, ovario villosulo.—Affinis *D. lanceolaria*. Folia longiora, petiolo communi 6–10-pollicari, foliolis 1–1½-pollicaribus, minus dissitis, novellis sericeis. Paniculæ e cyma unica v. paucis compositæ, breviter pedunculatæ rufo-pubescentes, confertifloræ. Pedicelli ½ lin. v. fructiferi vix 1 lin. longi. Flores vix 3 lin. Calyx quam in *D. lanceolaria* multo brevior, dente etiam infimo obtuso. Ovula 4. Legumen quam in affinis multo angustius, 1½–2-poll. longum, 3–4 rarius 5 lin. latum, 1–4-spermum.

Hab. Northern India, Nepal and Deyra Dhoon, *Wallich*; Gurwhal and Kumaon, outer hills and valleys, and in the Terai, *Royle*, *Edgeworth*, *Strachey & Winterbottom*, *Madden*, *Thomson*.

54. *D. VOLUBILIS* (*Roxb. Pl. Corom. ii. p. 48. t. 191*), scandens, foliolis 11–13 obovali v. ovali-oblongis obtusis retusisve glabris supra venosis subtus minute impresso-reticulatis, paniculis per anthesin aphyllis, cymis confertis pubescenti-villosis, calycis subsessilis villosuli dentibus superioribus obtusis, vexillo lato, staminibus isadelphis, ovario villosulo.—A *D. lanceolaria* differt caule scandente, cymis confertis, floribus minoribus. Inflorescentia *D. confertifloræ*, sed stamina constanter etiam in alabastro in phalanges 2 disposita. Foliola 1–1½-pollicaria, etiam novella glabra. Pedicelli ½ lin. longi, flores 3–4 lin. Ungues petalorum tubo calycis breviores. Ovarium longiuscule stipitatum, ovulis 2. Legumen non visum.

Hab. East India, mountainous countries on the coast, *Roxburgh*; Kumaon, *Strachey & Winterbottom*; Central India, plains of Behar, Sikkim, lower hills and Terai, *Hooker*; Chittagong, *Hooker*; Rangoon, *MacLelland*.

55? *D. PURPUREA* (*Wall. Catal. n. 5869*), scandens? foliis floribusque *D. volubilis*, inflorescentia laxiore, pedicellis 1–1½ lin. longis et vexillo, ut videtur, angustiore. An hujus var. *laxiflora*? an *D. frondosa* var. *parviflora*?—*D. elliptica*, Spanoghe Linnæa, xv. p. 196? excl. descr. leguminis?

Hab. Moolmyne, *Wallich*, *Griffith*.

The specimens are very imperfect, and seem to connect the arboreal *D. lanceolaria* with the climbing *D. volubilis* and *D. saxatilis*. Those gathered in Canara by *Hohenacker*, n. 561, belong to the same category. These difficulties cannot be cleared up until good specimens in fruit, as well as in flower, of the several forms shall have been obtained and compared.

56. *D. SAXATILIS* (*Hook. fl. Fl. Nig. p. 314*), scandens, foliolis 9–11 oblongis obtusis retusisve glabris utrinque venulosis, paniculis laxe subcymosis axillaribus terminalibusque vix tomentellis, calycis pedicel-

lati glabrati dentibus summis obtusis, vexillo lato, staminibus isadelphis, ovario glabriusculo, legumine maximo lævi.—*D. volubili* valde affinis. Inflorescentia laxior et glabrior et legumen peculiare verosimiliter diversum. Foliola pleraque $1\frac{1}{2}$ -pollicaria, maxima 2 poll., nonnulla vix 1 poll. longa, latiuscule oblonga, subtus pallida, venis tamen quam in *D. volubili* magis conspicuis. Pedicelli 1 lin. v. paullo longiores. Flores fere *D. lanceolaria* nisi minores, $3-3\frac{1}{2}$ lin. longi. Calyx in sicco nigrescens. Ovula 3-4. Legumen (a Heudelotio missum) 4 poll. longum, $1\frac{1}{4}$ poll. latum, stipite 4-5 lin. longo, tenue, læve, glaucescens, medio monospermum et vix tenuissime reticulatum.

Hab. Tropical Africa, Senegambia, *Heudelot*. n. 717; Sierra Leone, *Don*, *Ansell*, *Barter*.

57. *D. MELANOXYLON* (*Guill. et Perr. Fl. Seneg.* p. 227. t. 53), fruticosa, spinescens, foliolis 9-13 (parvis) late ovali-oblongis obtusissimis retusisve glabris, paniculis laxe subcymosis folio subbrevioribus puberulis, calycis pedicellati glabri dentibus summis obtusis, staminibus isadelphis, ovario glabro, stylo brevissimo.—A *D. saxatili* differt imprimis foliolis floribusque minoribus, pedicellis gracilibus. Stylo brevi et unguibus petalorum minus elongatis approximatur *Triptolemeis*. Ramuli hinc inde in spinas validas mutantur. Foliola 6-8 lin. longa, circa 4 lin. lata. Flores vix $2\frac{1}{2}$ lin. longi, pedicello 1 lin. Legumen $1\frac{1}{2}$ -2-pollicare, 1-2-spermum, medio 6 lin. latum, apice basique breviter acutatum, ad semen non induratum, venis paucis a margine oriundis percursum, v. læve.

Hab. Tropical Africa, Senegal, *Lelievre*, *Heudelot*; Æthiopia, *Kotschy*, n. 391; Abyssinia, *Schimper*, ser. ii. n. 885 and ser. iii. n. 1737, *Plowden*; Mozambique, *Peters*.

58. *D. PUBESCENS* (*Hook. fil. Fl. Nig.* p. 315), subscandens, foliolis 11-15 oblongis v. obovali-oblongis obtusis glabris v. subtus pubescentibus, paniculis confertis vix cymosis folio brevioribus rufo-pubescentibus, calycis breviter pedicellati dentibus summis obtusis, vexillo angusto, staminibus isadelphis, ovario glabro.—“Frutex subsarmentosus parum ramosus 3-4-metralis.” Foliola 1-1 $\frac{1}{2}$ -pollicaria, supra opaca glabra aut vix ad costam puberula, subtus sæpius rubescentia glabra v. præsertim ad costam pubescentia, venis vix conspicuis. Paniculæ axillares et terminales, e racemis brevibus unilateralibus simplicibus v. parum ramosis compositæ. Pedicelli $\frac{1}{2}$ lin., flores 3-4 lin. longi. Calyx brevis, latus, dentibus inferioribus acutiusculis. Petalorum ungues calyce sublongiores. Vexillum vix cæteris petalis latius. Ovarium longe stipitatum, ovulis 4, stylo subulato. Legumen non visum.

Hab. Tropical Africa, Senegambia, *Heudelot*, n. 895; Sierra Leone, *Don*, *Miss Turner*.

59. *D. STIPULACEA* (*Roxb. Fl. Ind.* v. 3. p. 233), fruticosa, glabrescens, foliolis 17-25 oblongis obtusis retusisve, racemis axillaribus lateralibusve laxis, bracteis bracteolisque persistentibus, his calyce

sublongioribus, calycis longe pedicellati dentibus summis obtusis, vexillo lato, staminibus isadelphis.—Wight, Ic. t. 243; *D. ferruginea*, Roxb. Fl. Ind. iii. p. 228 ex descr.; *D. tingens*, Ham. in Wall. Catal. v. 5860; *D. cassioides*, Wall. Catal. n. 5861; *D. livida*, Grah. in Wall. Catal. n. 5866.—Foliola subpollicaria, tenuissime et non crebre venulosa. Inflorescentiæ 2-4-pollicares, minus ramosæ quam in cæteris speciebus, siccitate sæpe nigricantes. Pedicelli 2-2½ lin. longi, secundi. Bracteæ et bracteolæ conspicuæ, 1½-2 lin. longæ, foliaceæ, et fere omnes etiam post flores delapsos persistunt. Flores 3-3½ lin. longi. Calycis dens infimus linearis. Ovarium longiusecule stipitatum, ciliatum. Legumen glaberrimum, glaucum, circa 3 poll. longum et 1 poll. latum, monospermum, medio leviter incrassatum et corrugatum.

Hab. Northern and Eastern India; Silhet, *Wallich*; Assam, *Jenkins*; Sikkim, lower hills, *Hooker*; Tavoy and Martaban, *Wallich*.

60? *D. LUZONIENSIS* (*Vog. Pl. Meyen.*, p. 33), subglabra, foliolis sub 16 oblongis obliquis subemarginatis subtus discoloribus pubescentibus, racemis axillaribus petiolo brevioribus, calyce pedicellato brevi glabro, dente infimo acuto.—Foliola ½ poll. longa, 4 lin. lata, supra glabra nitentia, subtus pube adpressa tecta, rigide membranacea. Pedicelli vix 3 lin. longi. Legumen usque ad 2 poll. longum, ½ poll. latum, stipite calycem parum superante. Flores ignoti.

Hab. Philippines, Luçon, *Meyen*.

Unknown to me. From the simple inflorescence and long pedicels I should presume it to be near the *D. stipulacea*.

61. *D. FLEXUOSA* (*Grah. in Wall. Catal.* n. 5875), scandens? foliolis 7-11 ovatis v. ovali-oblongis acuminatis coriaceis supra nitidulis subtus pauciveniis ad costam hispidis, paniculis laxis folio subbrevioribus ferrugineo-tomentosis, calycis subsessilis dentibus obtusis, staminibus isadelphis, ovario hirsuto.—Ab omnibus affinibus differt foliolis (in specimine vix perfecte evolutis) 2-2½-pollicaribus nitidisque apice breviter et obtuse acuminatis, basi rotundatis, petiolulo 3 lin. longo. Paniculæ semipedales, axillares et infrafoliaceæ. Pedicelli raro ½ lin. longi. Flores circa 3 lin. Vexillum orbiculatum, ungue calycem æquante. Ovarium longe stipitatum, ovulis 2, stylo subulato. Legumen non visum.

Hab. Silhet, *Wallich*.

Series 6. *Selenolobia*.

62. *D. MONOSPERMA* (*Dalz. in Kew Journ. Bot.* v. 2. p. 36), scandens inermis, foliolis sub-5 obovatis v. obovali-oblongis obtusissimis retusisve glabris v. subtus vix puberulis, racemis axillaribus brevibus simplicibus subcymosisve, calycis breviter pedicellati lati dentibus obtusis, petalis longe unguiculatis, staminibus monadelphis, legumine lunulato.—*D. torta*, Grah. in Wall. Catal. n. 5879.—Tota glabra subglauescens v. pubes minuta in pagina inferiore foliolorum in petiolis et inflores-

centia. Foliola pollicaria v. minora, tenuissime reticulato-pennivenia. Racemi $\frac{1}{2}$ –1-pollicares, unilaterales, nunc simplices et solitarii, sæpius terni v. in cymas breves excrescentes. Flores 3–4 lin. longi, pedicello vix $\frac{1}{2}$ lin. excedente. Stamina 10, monadelphæ, vagina hiantæ. Ovarium glabrum, 2-ovulatum, stylo subulato inflexo. Legumen 1 poll. longum, 6 lin. latum, breviter stipitatum, falcato-lunatum, crassiusculum, læve, monospermum.

Hab. East India, Ceylon, *Thwaites*, *Walker*, &c.; the Peninsula, *Heyne*, *Wight*; prov. Malwah, *Dalzell*; Penang and Singapore, *Wallich*, *Catal.* n. 5873; Malacca, *Griffith*; China, *Millett*. Some specimens also are mixed in the Wallichian Collection under n. 5848 I, with those of *D. confertiflora* from Sillet, but possibly not gathered there.

63. *D. SPINOSA* (*Roxb. Fl. Ind.* iii. p. 233), fruticosa, glabra, spinescens, foliolis 7–11 cuneato-oblongis obtusissimis retusisve, racemis axillaribus brevissimis subcymosis, floribus parvis breviter pedicellatis, calycis dentibus obtusis, staminibus isadelphis, legumine brevi reniformi v. sublunulato.—*D. horrida*, *Grah.* in *Wall. Catal.* n. 5877 ex parte.—Foliola quam in *D. spinosa* minora. Flores multo minores, vix 2 lineas excedunt. Calyx tenuis, submembranaceus, glaber. Petalorum unguis breves. Legumen vix pollicare, quam in *D. monosperma* latius, et sæpius reniforme quam lunulatum, minusque incrassatum, interdum vero omnino *D. monospermæ* conforme.

Hab. East India, Chittagong, *Roxburgh*; Sunderbunds, *Hamilton*; also in the Peninsula from a single imperfect specimen, *Wight*, n. 798.

64. *D. INUNDATA* (*Benth. in Mart. Fl. Bras. Leg.* ined.), foliolis 29–35, anguste oblongis obtusis novellis inflorescentiaque aureo-sericeis demum glabratis subtus discoloribus, calycis dentibus acutis, staminibus varie connatis, legumine falcato-lunulato.—Foliola semipollicaria, 2–3 lin. lata. Racemuli laterales fasciculati, 1–2-pollicares. Flores 4 lin. longi, breviter pedicellati. Stamen vexillare et interdum carinale liberum, cætera isadelphe, v. 9 connata. Legumen sessile, lunulatum, 10–22 lin. longum, 5 lin. latum, ut in *D. monosperma* crassiusculum.

Hab. North Brazil, *Spruce*, distributed originally in flower as *Miscobium inundatum*, and afterwards in fruit as *Drepanocarpus discolor*.

Doubtful Species.

D. Mooniana, *Thw. Enum. Ceyl. Pl.* p. 93, from Ceylon, is known only from fruiting specimens, which differ much from the rest of the genus, both in the pod, which is nearly that of a *Derris*, and in inflorescence; whilst the alternate leaflets preclude the enumerating it under the latter genus. It must remain doubtful until the flower has been seen.

D. rotundifolia, *Sond. Linnæa*, v. 23, p. 35, from South Africa, described from fruiting specimens only, is more probably a *Lonchocarpus*. I have not, however, seen the specimens myself.

D. ougeinensis, Roxb., now forms the genus *Ougeinia* in Hedysarææ. *D. pubinervis*, Spanoghe, *D. venusta*, Zippel., the whole section *Brachypterum*, W. et Arn., and several *Dalbergias* of the older authors are species of *Derris*. *D. angustifolia*, Hassk., *D. Barclayana*, Hook., *D. striata*, Boj., *D. tephrosioides*, W. et Arn., and some others belong to *Millettia* or *Mundulea*.

II. ECASTAPHYLLUM, Pers.

Flos omnino *Dalbergiæ*. Legumen orbiculatum v. breviter oblongum, planum v. demum suberoso-incrassatum, indehiscens, monospermum, ad suturam vexillarem submarginatum. Semen reniforme.—Frutices laxè ramosi v. sarmentoso-subscandentes, Austro-Americani etiam per Africam calidiorem dispersi, in omnibus præter legumen cum *Dalbergia* convenientes.

1. *E. BROWNEI* (Pers., DC. *Prod.* ii. p. 420), foliolis omnibus solitariis ovatis obtuse acuminatis subtus ramulisque tomentosis v. rarius glabrescentibus pallidis, staminibus 10, legumine orbiculato demum incrassato-corrugato.—*E. molle*, Miq. Linnæa, xix. p. 437.—Foliolum vulgo 3-4 poll. longum, acumine quam in *E. monetaria* multo breviorè, supra opacum nec nitidum, subtus raro glabrescens. Racemi fasciculato-subcymosi, axillares v. laterales, breves, confertiflori. Flores circa 4 lin. longi. Legumen pollicem diametro.

Hab. Tropical America, especially near the sea, from South Brazil to Florida, the West Indies, and Central America; also in West Tropical Africa.

2. *E. MONETARIA* (Pers., DC. *Prodr.* ii. p. 421), foliolis 3-5, rarius solitariis, ovatis acuminatis concoloribus glabris v. subtus ramulisque pube minuta conspersis, staminibus 9, legumine glabro læviusculo rarius incrassato.—*E. Richardi* et *E. Plumieri*, Pers. Syn. ii. p. 277; *E. Berterii*, DC. *Prod.* ii. p. 421; *E. hygrophilum* et *E. nitidum*, Mart., Benth. in Ann. Mus. Vind. ii. p. 93; *E.* (v. II.) *Benthamianum*, Miq. in Linnæa, xviii. p. 575.—Caulis scandens. Foliola nunc omnia 3-5-foliolata, 2-4-pollicaria, nunc pleraque (nec omnia) solitaria et nonnunquam usque ad 7-8 poll. longa, 3-4 poll. lata. Inflorescentia *E. Brownei*. Flores paullo minores. Legumen vulgo subpollicare, 9 lin. latum, fere planum, crassiusculum et læve, nonnunquam medio plus minus suberoso-incrassatum et corrugatum.

Hab. Tropical America, North Brazil, Cayenne, Surinam (*Hostmann*, n. 184); British Guiana (*Schomburgk*, 1st coll. n. 492); Trinidad, *Purdie*; St. Domingo, *Bertero*, *Schomburgk*, n. 85.

- β? *Riedeli*, foliolis vulgo minoribus, minus acuminatis, subtus ramulis inflorescentiaque tomento brevissimo ferrugineis v. subsericeis, legumine tomentello sæpius incrassato.

Hab. North Brazil, and apparently in Senegambia, also, judging from a single specimen in fruit only, from the Rio Nuñez, *Heudelot*, n. 623.

The foliage and fruits assume in this species such a variety of forms that it is often difficult to believe that single specimens do not belong to distinct species till we have to turn over large masses of specimens, often showing two such supposed species from the same stem.

3. *E. PUBESCENS* (DC. *Prod.* ii. p. 421), foliolis 5–11 ovatis oblongisve acuminatis utrinque ramulis inflorescentiaque pubescenti-hirtis, legumine suborbiculato-tomentoso.—Ab *E. monetaria* differt foliolis multo minoribus numerosioribus, pube præsertim in ramulis patente, tenuiter rufescente. Foliola maxima 2-pollicaria, pleraque 1–1½ poll. longa. Flores quam in *E. monetaria* minores. Legumen 1¼–1½ poll. longum, 1 poll. latum, reticulato-venosum, in speciminibus a me visis vix incrassatum, sed nondum maturum.

Hab. Cayenne, *Martin*.

4. *E. GLAUCUM* (Desv. *Ann. Sc. Nat. Par.* ser. l. ix. p. 423), foliolis 5–7 oblongis glabris subtus glaucis crebre venulosis, legumine suborbiculato crassiusculo lævi glabro.—*E. foliosum*, Benth. in Hook. *Journ. Bot.* ii. p. 64.—Foliola subcoriacea quam in *E. pubescente* paullo majora, iis tamen *E. monetariae* multo minora et angustiora, crebre subparallele venulosa nec subremote pennivenia. Flores *E. monetariae*. Legumen 6–9 lin. longum et latum, crassiusculum sed planum.

Hab. Cayenne, *Martin* in *Herb. Par.*; Portorico in *Herb. Desv.*, but probably this is one of the mistakes Desvaux frequently made in entering the stations of his specimens in his herbarium from recollection.

5. *E.?* *TOMENTOSUM* (*Spruce, Benth. in Mart. Fl. Bras. Leg.*, ined.), foliolis 5–7 ovatis vix acuminatis utrinque ramulisque molliter pubescentibus, legumine (oblongo?) glabro.—Scandens. Foliola 1½–3-pollicaria. Racemi ut in præcedentibus breves, numerosi, confertim subpaniculati. Stamina isadelphæ. Legumen junius 9 lin. longum 3 lin. latum; perfectum non vidi.

Hab. North Brazil, *Spruce*.

Till the ripe fruit has been seen, it must remain uncertain whether this is an *Ecastaphyllum* or a *Dalbergia*.

III. CYCLOLOBIUM, *Benth.*

Calyx campanulatus, 5-dentatus. Carina petala dorso imbricantia v. leviter connata. Stamen vexillare liberum, cætera connata. Antheræ versatiles. Ovarium pluriovulatum. Legumen stipitatum, orbiculatum (v. late falcatum?) membranaceum, indehiscens, ad semina vix incrassatum, sutura vexillari anguste alata, stylo terminali. Semina 2–3, oblonga, transversa, embryone recto.—Frutices Austro-Americani. Folia alterna, petiolo apice unifoliolato, sæpe bistipellato. Racemi axillares v. laterales, subsimplices, solitarii v. fasciculati. Pedicelli solitarii, bracteolis minutis caducis.

1. *C. BRASILIENSE* (*Benth. in Ann. Mus. Vind.* ii. p. 92 et in *Mart. Fl. Bras. Leg.*, ined.), foliolo breviter petiolato ovali-oblongo basi rotun-

dato-angustato, novellis subtus ferrugineo-puberulis, stipellis minutis, racemis pubescentibus, ovulis circa 4.—Foliola sæpius 1-1½ poll. longa, rarius 2-2½ poll., latitudine varia, petiolo 2-3 rarius 4 lin. longo. Racemi folio breviores. Legumen 9-10 lin. diametro.

Hab. Brazil (Minas Geraes?), *Pohl*.

2. *C. CLAUSSENI* (*Benth. in Hook. Journ. Bot.* ii. p. 64, et in *Mart. Fl. Bras. Leg.* ined.), foliolo longiuscule petiolato ovato-lanceolato suboblongove basi subcordato glabro, stipellis minutis, racemis pubescentibus, ovulis circa 4.—Foliola 3-6-pollicaria, basi quam in præcedente latiora, petiolo 8-10 lin. longo. Racemi 1-2-pollicares. Flores 4-5 lin. longi. Legumen junius ei *C. brasiliensis* simillimum.

Hab. Brazil, prov. Minas Geraes.

3. *C. BLANCHETIANUM* (*Tul. in Arch. Mus. Par.* iv. p. 84), foliolo longiuscule petiolato ovato-lanceolato oblongove basi rotundato v. subcordato glabro, stipellis setaceis petiolulum æquantibus racemis puberulis, ovulis 2.—Folia *C. Clausseii*, a quo hæc species paullulum differt stipellis, ovario, et alis petalisque carinalibus prope basin plica saccata auctis quam in *C. Clausseii* evidentiore. Legumen non visum.

Hab. Brazil, prov. Bahia (*Blanchet*, n. 2319).

4. *C. HOSTMANNI*, sp. n., foliolo longe petiolato elliptico-oblongo basi acutiusculo glabro, stipellis inconspicuis, racemis vix puberulis, calycis laciniis tubo longioribus, ovulis 6-8.—Foliola 4-8 poll. longa. Calyx 3-3½ lin. longus, basi quam in præcedentibus magis attenuatus, dentibus 3 inferioribus profundius solutis, 2 summis alte connatis. Petala fere *C. Blanchetiani*. Legumen junius longe stipitatum et valde falcatum, perfectum verosimiliter ut in præcedentibus orbiculatum.

Hab. Surinam, *Hostmann*, n. 172.

IV. MACHÆRIUM, *Pers.*

Calyx truncatus, breviter 5-dentatus, basi obtusus. Vexillum basi nudum, extus sæpe sericeum. Carinæ petala dorso connata. Stamina monadelphæ v. æqualiter diadelphæ v. vexillare solutum. Anthæræ versatiles. Ovarium sæpius stipitatum, uniovulatum, rarissime biovulatum, disco cupuliformi basi sæpius circumdatum. Legumen compressum, samaroideum, indehiscens, basi plus minus incrassatum et monospermum, sutura vexillari ad semen plus minus intrusa, superne in alam oblongam attenuatum, stylo terminali.—Caulis lignosus, arboreus fruticosus v. alte scandens. Folia impari-pinnata, foliolis plerisque alternis exstipellatis. Stipulæ in speciebus scandentibus sæpe indurato-spinescentes. Racemuli breves, secundiflori, fasciculati v. ramosi, axillares v. in paniculam terminalem dispositi. Pedicelli breves, nunc brevissimi. Bracteæ parvæ, caducæ. Bracteolæ sub calyce vulgo orbiculatæ, persistentes. Flores parvi v. mediocres, purpurei violacei v. albi. Species omnes ex America australi v. centrali.

§ 1. LINEATA. Foliolorum venæ primariæ a costa divergentes crebræ, subcontiguæ, parallelæ, vix anastomosantes. Stipulæ sæpius indurato-spinoscentes.

* *Foliolis obtusis v. retusis, oblongis v. linearibus, sæpius parvis.*

1. *M. longifolium.* (Brasilia bor.)
2. *M. angustifolium.* (A Brasilia ad Amer. centralem.)
3. *M. amplum.* (Brasilia.)
4. *M. aculeatum.* (Brasilia.)
5. *M. splendens.* (Brasilia.)
6. *M. uncinatum.* (Brasilia.)
7. *M. robiniaefolium.* (Ind. occident.)
8. *M. pilosum.* (Brasilia bor.)
9. *M. eriocarpum.* (Brasilia.)

** *Foliolis acutis v. acuminatis, ovatis v. latiuscule oblongis.*

10. *M. discolor.* (Brasilia.)
11. *M. Humboldtianum.* (America tropica.)
12. *M. Vellosianum.* (Brasilia.)

§ 2. OBLONGA. Foliola sæpius parva et numerosa, rarius pollicaria, oblonga v. linearia, obtusa v. retusa, penninervia, venulis (parum prominentibus) irregulariter arcuato-anastomosantibus. Differunt a *Lineatis obtusifoliis* foliolorum venis primariis minus crebris et evidentius anastomosantibus, ab *Acutifoliis Reticulatisque*, foliolis sæpius parvis numerosis, ab illis etiam foliolis obtusis.

* *Stipulis indurato-spinoscentibus.*

13. *M. gracile.* (Brasilia.)
14. *M. nictitans.* (Brasilia.)

** *Inermes, stipulis deciduis v. nullis (nonnullæ, venulis crebrioribus, a Lineatis differunt imprimis caule inermi).*

15. *M. scleroxylon.* (Brasilia.)
16. *M. sordidum.* (Brasilia.)
- 17? *M. Moritzianum.* (Venezuela.)
18. *M. myrianthum.* (Brasilia bor.)
19. *M. Goudoti.* (N. Grenada.)
20. *M. Gardneri.* (Brasilia.)
21. *M. polyphyllum.* (Cayenna.)

§ 3. ACUTIFOLIA. Foliola (sæpius pollicaria v. longiora et subnumerosa) lanceolata v. ovato-lanceolata, v. acute oblonga, pennivenia, venulis reticulatis v. intra marginem arcuato-anastomosantibus. Species omnes inermes et pleræque arborescentes. Ab *Oblongis* differunt foliolis acutioribus et sæpius majoribus, a *Reticulatis* foliolis angustioribus potius acutatis quam acuminatis, a *Penninerviis* venatione et foliolis vulgo minoribus numerosioribus.

22. *M. parviflorum.* (Brasilia.)

- 23. *M. incorruptibile*. (Brasilia.)
- 24. *M. firmum* (foliola obtusiuscula). (Brasilia.)
- 25. *M. legale*. (Brasilia.)
- 26. *M. villosum*. (Brasilia.)
- 27. *M. mucronulatum*. (Brasilia.)
- 28. *M. acutifolium*. (Brasilia.)
- 29. *M. stipitatum*. (Brasilia.)

§ 4. *RETICULATA*. Foliola (pollicaria v. longiora) ovata v. oblonga, obtusa v. obtuse acuminata, pennivenia, venulis irregulariter reticulatis v. intra marginem arcuato-anastomosantibus. Species pleræque arborescentes et inermes, paucæ scandentes stipulis hinc inde indurato-spinescentibus. Differunt ab *Oblongis* foliolis majoribus latioribus sæpe acuminatis et in folio paucioribus, ab *Acutifoliis* foliolis obtuse acuminatis, a *Penninerviis* venatione foliolorum.

- 30. *M. leucopterum*. (Brasilia.)
- 31. *M. glabrum*. (Brasilia.)
- 32. *M. violaceum*. (Brasilia.)
- 33. *M. secundiflorum*. (Brasilia.)
- 34. *M. Salzmanni*. (Brasilia.)
- 35. *M. Allemani*. (Brasilia.)
- 36. *M. Brasiliense*. (Brasilia.)
- 37. *M. densicomum*. (Brasilia bor.)
- 38. *M. erianthum*. (Brasilia.)
- 39. *M. vestitum*. (Brasilia.)
- 40. *M. triste*. (Brasilia.)
- 41. *M. oblongifolium*. (Brasilia.)
- 42. *M. Seemanni*. (America centralis.)
- 43. *M. pedicellatum*. (Brasilia.)
- 44. *M. bracteatum*. (N. Grenada.)
- 45. *M. acuminatum*. (Venezuela.)
- 46. *M. leiophyllum*. (Guiana.)
- 47. *M. Schomburgkii*. (Guiana.)
- 48. *M. opacum*. (Brasilia.)

§ 5. *PENNINERVIA*. Foliola ultrapollicaria, sæpius ampla, ovata v. oblonga, obtusa v. acuminata, rarius acuta, venis primariis inter se dissitis et parallelis a costa usque ad marginem prominentibus (rarius juxta marginem arcuato-anastomosantibus), rete venularum intermedia subtransversa tenui.

- 49. *M. lanatum*. (Brasilia.)
- 50. *M. nigrum*. (Brasilia.)
- 51. *M. Lindenianum*. (Venezuela.)
- 52. *M. ferrugineum*. (Brasilia sept.; Guiana.)
- 53. *M. macrophyllum*. (Brasilia sept.)
- 54. *M. Kegeli*. (Surinam.)

55. *M. eriostemon*. (Brasilia.)

56. *M. floribundum*. (Guiana, Brasilia bor. et occid.)

§ 1. LINEATA.

1. *M. LONGIFOLIUM* (*Benth. in Mart. Fl. Bras. Leg. ined.*), stipulis lato-lanceolatis demum indurato-spinescentibus, foliolis 25–35 lineari-oblongis obtusis retusisve crebre lineato-venosis utrinque pilosis, racemis laxe subpaniculatis rufo-pubescentibus glabratissive, staminibus isadelphis, carina ovarioque valde arcuatis.

Hab. North Brazil (*Spruce*, n. 1661).

Differs from the *M. angustifolium* chiefly in its longer, more hairy, and thinner leaflets, and some other details which give it a very distinct aspect.

2. *M. ANGUSTIFOLIUM* (*Vog. Linnæa*, xi. p. 193), stipulis induratis demum spinescentibus, foliolis 25–61 lineari-oblongis obtusis retusisve crebre lineato-venosis glabris v. subtus minute puberulis, racemis paniculatis fusco-pubescentibus, staminibus isadelphis, carina ovarioque valde arcuatis.—*M. affine*, *Benth. in Ann. Mus. Vind.* ii. p. 100; *M. acaciæfolium*, *Mart. Herb. Fl. Bras.* n. 1310; *M. armatum*, *Vog. Linnæa*, xi. p. 191 (specimina cujabensia foliolis paullo longioribus latioribusque); *Drepanocarpus isadelphus*, *G. F. W. Mey. in Act. Acad. Nat. Cur.* xii. p. 867 ex descr.; *M. violaceo-purpureum*, *Duchass. in Walp. Ann.* ii. p. 437.—Foliola vulgo vix $\frac{1}{2}$ –1 poll. longa, 2–2½ lin. lata. Flores 5–6 lin. longi, vexillo subsericeo. Legumen rectiusculum ad semen vix introrsum.

Hab. Widely spread over South America, frequent in Brazil, both southern and northern (*Blanchet*, n. 29, 2297, 2416); in Eastern Peru, Tarapoto, *Spruce*, n. 4556; in British Guiana, *Schomburgk*, 1st coll. no. 78; Venezuela, *Funcke*, n. 405; N. Grenada, *Holton*, n. 982; Panama, *Hinds*, *Duchassaing*.

Fendler's n. 2228 from Venezuela, of which I have seen only a poor specimen, may be a variety of this species. His n. 1750 and 1866 of the 2nd coll., described below under *M. Moritzionum*, have also nearly the venation of this and the next species, but with rather more reticulation.

3. *M. AMPLUM* (*Benth. in Ann. Mus. Vind.* ii. p. 97, *et in Mart. Fl. Bras. Leg. ined.*), stipulis brevibus demum indurato-spinescentibus, foliolis 11–17 oblongis obtusis retusisve crebre lineato-venosis glaberrimis, racemis ample paniculatis vix canescenti-puberulis, staminibus monadelphis, carina ovarioque incurvis.—Foliola quam in præcedente majora, pauciora. Flores paullo majores, vexillo sericeo. Carina minus arcuata. Staminum vaginam in dorso semper per anthesin integram vidi.

Hab. Brazil, chiefly in Goyaz and to the northward (*Gardner*, n. 4116).

4. *M. ACULEATUM* (*Raddi, Tul. Arch. Mus. Par.* iv. p. 89; *Benth. in Mart. Fl. Bras. Leg. ined.*), stipulis demum indurato-spinescentibus,

foliolis 31–45 anguste oblongis obtusis retusisve crebre lineato-venosis nitentibus subtus pilosulis, paniculis brevibus fusco-pubescentibus, vexillo sericeo, carina alis multo brevior, staminibus isadelphis.—*Nissolia aculeata*, DC. Prod. ii. p. 258; *Drepanocarpus polyphyllus*, Benth. in Ann. Mus. Vind. ii. p. 96; *Machærium sericiflorum*, Vog. Linnæa, xi. p. 192, ex descr.—Foliola 5–6 lin. longa, coriacea, venis nonnisi subtus conspicuis. Flores semipollicares fere *Drepanocarpi ferocis*.

Hab. Brazil, chiefly near the sea, from Rio Janeiro to Pernambuco (Gardner, n. 965).

5. *M. SPLENDENS* (Vog. Linnæa, xi. p. 192). Stipulis demum indurato-spinescentibus, foliolis circa 19 lineari-oblongis retusis basi cuneatis subtus cæcio-nitentibus, racemis compositis, legumine incurvo cultriformi glabro.

Hab. South Brazil, Sello.

I have not myself seen this species, said to differ from the last chiefly by being glabrous in all its parts.

6. *M. UNCINATUM* (Benth. in Ann. Mus. Vind. ii. p. 98, et in Mart. Fl. Bras. Leg. ined.), stipulis parvis demum indurato-spinescentibus, foliolis 19–31 anguste oblongis obtusis retusisve glabris v. subtus minute puberulis crebre lineato-venosis, racemis lateralibus paniculatis densifloris folio brevioribus, petalis glabris, staminibus isadelphis, ovario subrecto.—*Nissolia uncinata*, Vell. Fl. Flum. vii. t. 76.—Foliola 5–7 lin. Flores 4 lin. longi.

Hab. Brazil, Rio Janeiro and Minas Geraes.

In its inflorescence and smaller flowers, this species has something of the habit of a *Dalbergia*.

7. *M. ROBINIÆFOLIUM* (Vog. Linnæa, xi. p. 182), stipulis demum indurato-spinescentibus, foliolis 19–31 oblongis obtusis mucronulatis glaberrimis, racemis axillaribus multifloris folio brevioribus, rhachi calycibusque subferrugineis, floribus glabris.—*Nissolia robiniaefolia*, DC. Prod. ii. p. 258; *Machærium Sieberi*, Benth. in Ann. Mus. Vind. ii. p. 98.—Habitus et inflorescentia fere *M. uncinati*, sed racemi laxiores, minus numerosi, floribus paucioribus majoribus. Stipulæ spinescentes rectæ. Rami glabri. Foliola $\frac{3}{4}$ –1-pollicaria, basi rotundata, ut in *M. uncinato* lineata, subcoriacea. Calyx subglaber. Carina subrostrata, alas subsuperans. Ovarium villosissimum. Legumen tenuiter sericeo-villosum, $1\frac{1}{2}$ –2 poll. longum, 5–6 lin. latum, stipite 3 lin. longo, ad semen hinc intrusum, ala crassiuscula.

Hab. West Indies, Trinidad, Sieber, n. 204; St. Vincent's, Herb. DC.

The above character and description were made in the herbaria of Vienna and of DeCandolle. I regret that, in now working up the genus, I have not had specimens before me to compare more satisfactorily with the allied species.

8. *M. PILOSUM* (*Benth. in Mart. Fl. Bras. Leg. ined.*), stipulis induratis demum spinescentibus, foliolis 25–45 lineari-oblongis obtusis retusisve crebre lineato-venosis glabris puberulisve, racemis subpaniculatis brevibus rufo-pubescentibus, vexillo glabro v. vix pilosulo, carina ovarioque incurvis, staminibus monadelphis.—Folia et legumina fere *M. angustifolii*. Flores minores (vix 4 lin. longi) glabriores. Carina minus arcuata. Stamina vagina dorso integra.

Hab. North Brasil.

9. *M. ERIOCARPUM* (*Benth. in Ann. Mus. Vind. ii. p. 98, et in Mart. Fl. Bras. Leg. ined.*), stipulis demum indurato-spinescentibus, foliolis 35–75 linearibus obtusis rigidulis subparallele venulosis, racemis ramis petiolisque cano-tomentosis, vexillo glabro, carina arcuato-subrostrata, staminibus monadelphis, ovario rectiusculo.—*M. angustifolium*, Mart. Herb. Fl. Bras. n. 1111, non Vog.; *M. Martii*, Tul. Arch. Mus. Par. iv. p. 92; *Nissolia hirta*, Vell. Fl. Flum. vii. t. 78?—Foliola conferta, 3–6 lin. longa, novella cano-tomentosa demum glabrata. Flores 4 lin. longi, panícula brevi. Legumen cano-tomentosum.

Hab. Brazil, prov. Mattogrosso.

10. *M. DISCOLOR* (*Vog. Linnæa, xi. p. 204*), stipulis induratis demum spinescentibus, foliolis 5–7 ovatis acuminatis basi acutis glabris coriaceis nitidis crebre lineato-venosis, racemis laxè paniculatis, staminibus monadelphis, carina naviculari, ovario vix curvato.—*M. lineatum*, Benth. in Ann. Mus. Vind. ii. p. 98; *Nissolia declinata*, Vell. Fl. Flum. vii. t. 77?—Foliola bipollicaria et longiora, ultra pollicem lata. Flores vix 4 lin. longi. Legumen ignotum.

Hab. Brazil, near Rio Janeiro.

11. *M. HUMBOLDTIANUM* (*Vog. Linnæa, xi. p. 198*), stipulis induratis demum spinescentibus, foliolis 5–7 ovatis acuminatis basi subrotundatis glabris coriaceis nitidis creberrime lineato-venosis, racemis laxè paniculatis, staminibus subisadelphis, carina ovarioque vix arcuatis.—Valde affine *M. discolori*. Venæ foliorum crebriores, vix anastomosantes. Flores paullo majores et forma petalorum paullulum diversi. Legumen glabrum, parte seminifera quam ala dimidio angustiore, basi acutum, longiuscule stipitatum.

Hab. New Granada, in the valley of the Araguas, *Humboldt & Bonpland*; near Caraccas, *Vargas, Linden*, n. 202.

12. *M. VELLOSIANUM* (*Benth. in Ann. Mus. Vind. ii. p. 98, et in Mart. Fl. Bras. Leg. ined.*), stipulis demum indurato-spinescentibus, foliolis 7–13 oblongo-ovatis utrinque acutiusculis coriaceis glabris lineato-venosis, paniculis puberulis, legumine glabro.—*Nissolia aculeata*, Vell. Fl. Flum. vii. t. 79, non DC.—Foliola 1 1½ poll. longa, 6–7 lin. lata.

Hab. Brasil, near Rio Janeiro.

I have only seen fruiting specimens, which differ from *M. discolor* chiefly in their smaller and narrower leaflets.

§ 2. OBLONGA.

13. *M. GRACILE* (*Benth. in Ann. Mus. Vind. ii. p. 98, et in Mart. Fl. Bras. Leg. ined.*), stipulis demum indurato-spinescentibus, foliolis 35-51 parvis oblongis obtusis mucronulatis, venulis arcuato-anastomosantibus, racemis axillaribus pedicellisque subfiliformibus, staminibus monadelphis.—Foliola 3-5 lin. longa. Racemi plerique simplices et solitarii. Pedicelli $1\frac{1}{2}$ -2 lin. longi. Flores vix 4 lin.

Hab. Brazil, *Schott.*

A very distinct species in its slender inflorescence and small leaflets, which give it something of the look of an *Æschynomene*. The pod is unknown, but the flowers are quite those of *Machærium*.

14. *M. NICTITANS* (*Benth. in Ann. Mus. Vind. ii. p. 98, et in Mart. Fl. Bras. Leg. ined.*), stipulis induratis longis validis rectis spinescentibus, foliolis 11-15 parvis oblongis obtusis rigidulis subtus pubescentibus venulis arcuato-anastomosantibus, racemis leguminibusque rufo-pubescentibus.—*Nissolia nictitans*, Vell. Fl. Flum. vii. t. 75.—Foliola iis *M. scleroxyli* simillima, 10-14 lin. longa, circa 4 lin. lata.

Hab. Brazil, *Pohl.*

Only seen in fruit, and figured also in fruit by Velloso, but distinguished from all others by the straight spines, which are often above an inch long.

15. *M. SCLEROXYLON* (*Tul. in Arch. Mus. Par. iv. p. 93*), stipulis deciduis inerme, foliolis 11-17 parvis oblongis retusis subtus puberulis, venulis arcuato-anastomosantibus, racemis puberulis, legumine glabro.—Foliola 6-10 lin. longa, 3-4 lin. lata, fere *M. nictitantis*. Legumen ad semen non intrusum.

Hab. Brazil, prov. Minas Geraes.

This also has only been seen in fruit. It is very near the last, but has no spines, and the pod is straighter and glabrous. It appears also allied to the *Drepanocarpus floridus*, which, having as yet been only seen in flower, may prove to be a *Machærium*.

16. *M. SORDIDUM* (*Benth. in Mart. Fl. Bras. Leg. ined.*), inerme, foliolis 21-31 parvis anguste oblongis obtusis subtus pubescentibus venulis tenuissimis reticulatis, racemis fasciculatis rufo-pubescentibus, vexillo glabro, staminibus monadelphis.—Foliola 8-10 lin. longa, 3 lin. lata, sæpe mucronulata. Flores fere 3 lin. longi. Alæ parum arcuatæ.

Hab. Brazil, prov. Minas Geraes (*Claussen, n. 139*).

The specimens which I have seen are not good, but do not sufficiently agree with those of the *M. scleroxyton* to be considered as the flowering state of that species, although evidently allied to it.

17. *M. MORITZIANUM*, sp. n., inerme?, foliolis 19-25 oblongis obtusissimis retusisve venulis tenuissimis reticulato-subparallelis glabris v. minute puberulis, racemis paniculatis rufo-tomentosis, vexillo glabro, carina valde arcuata, staminibus isadelphis, legumine tomen-

tello ad semen valde intruso, dorso valde arcuato.—Stipulas delapsas non vidi. Foliola, in specimine fructifero, fere *M. ampli*, ultra pollicem longa, 4 lin. lata, in florifero 8–10 lin. longa, venis tamen quam in *Lineatis* minus conspicuis et evidentius anastomosantibus. Panicula multiflora, basi foliata. Calyx tomentosus, fere sessilis, linea paullo longior. Flos totus vix 3 lineas superans. Ovarium uti carina valde arcuatum. Legumen bipollicare v. paullo longius, crassiusculum, basi fere ut in *Drepanocarpo* curvatum, ad semen 5–6 lin. latum, ala gladiata medio 8 lin. lata.

Hab. Venezuela, *Moritz*, n. 883 (in fruit); *Fendler coll.* 1. n. 1750 (in flower), and *coll.* 2. n. 1866 (in fruit).

I am not quite certain of having correctly matched the flowering and fruiting specimens, and I have also doubts whether the species would not be better placed near the *M. angustifolium*. It is, however, quite distinct from that species, especially in the pod, which at the base is like that of a *Drepanocarpus* on a small scale, with the long wing of *Machærium* at the end.

18. *M. MYRIANTHUM* (*Spruce*; *Benth. in Mart. Fl. Bras. Leg.* ined.), inerme, foliolis 35–51 lineari-oblongis obtusis coriaceis tenuissime reticulato-venulosis subtus paniculisque fusco-pubescentibus, panicula ampla, floribus parvis confertis, vexillo glabro, staminibus monadelphis. Foliola 8–12 lin. longa, circa 3 lin. lata. Flores vix 3 lin. longi, sessiles. Petala carinalia angusta, parum arcuata, vix connata. Legumen pubescens, basi leviter curvatum.

Hab. North Brazil? and Venezuela, near Panuré, on the Rio Uaupès, *Spruce*, n. 2758.

19. *M. GOUDOTI*, sp. n., inerme, stipulis linearibus deciduis, foliolis 21–35 lineari-oblongis obtusis retusisve glabris puberulisve reticulato-venulosis, racemis tomentellis, stamine vexillari subsoluto, ovario brevissime stipitato rectiusculo villosissimo, legumine pubescente.—Foliola 6–9 lin. longa, 2–3 lin. lata, primo intuitu vis *M. angustifolii* similima; sed venatio longe diversa; venulae enim irregulariter reticulatae, nec parallelae. Racemi in specimine simplices, 1 1½-pollicares. Pedicelli brevissimi. Bracteolae ½ lin. longae, calyci non appressae. Calyx 1½ lin. longus, pubescens, dentibus fere ad tertiam partem attingentibus. Petala superiora, jam delapsa, non vidi. Carina calyce vix duplo longior, latiuscule falcata, petalis longe unguiculatis dorso connatis. Staminum vagina postice integra, filamentum vexillari (anthesi peracta) fere a basi soluto. Ovarium fere sessile, uniovulatum, stylo inflexo glabro. Legumen 2–2½ poll. longum, basi 4 lin. latum, tomento rufo pubescens, ad semen intrusum, ala supra medium fere 9 lin. lata.

Hab. New Granada, at Ratata or Oratata (the name not very legible), *Goudot*.

The two specimens I have seen in DeCandolle's Herbarium are not good; but the species is evidently distinct from all others, especially in the ovary.

20. *M. GARDNERI* (*Benth. in Mart. Fl. Bras. Leg. ined.*), inerme, foliolis 21-35 anguste oblongis obtusis mucronulatisve reticulato-venulosis subtus petiolis ramulisque villosis, panicula rufo-villosa, vexillo rufo-sericeo, staminibus monadelphis, ovario longiuscule stipitato.—*M. sericiflorum*, Gardn. in Hook. Lond. Journ. Bot. ii. p. 341, non Vog.—Foliola 1-1½ poll. longa, 4-5 lin. lata. Paniculæ subpedales, aphyllæ. Flores sessiles, fere 6 lin. longæ.

Hab. Brazil, near Rio Janeiro (*Gardner*, n. 357).

21. *M. POLYPHYLLUM* (*Benth. in Ann. Mus. Vind. ii. p. 101*), "foliolis 23-35 ellipticis ovatisve obtusis subtus tomentosis, inferioribus (cujusque folii) multo minoribus, floribus paniculatis, leguminibus basi et ad suturas subpubescentibus, ad alæ basin subexcisus."—*Nissolia polyphylla*, Poir.; D.C. Prod. ii. p. 258.—Foliola ½-1-pollicaria, supra glabriuscula, subtus ferrugineo-pubescentia. Paniculæ villosæ. Calyx niger, glaberrimus. Vexillum dense sericeo-villosum. Legumen adpresse pilosum, 2-2½ poll. longum, leviter incurvum, ad semen 3 lin. latum et leviter intrusum, ala medio 5 lin. lata.

Hab. Cayenne, *Patris*.

The above notes were taken in DeCandolle's Herbarium in 1853. I have not had the opportunity since then of examining the flowers, or comparing the plant with the allied species now described.

§ 3. ACUTIFOLIA.

22. *M. PARVIFLORUM* (*Benth. in Mart. Fl. Bras. Leg. ined.*), inerme, foliolis 17-31 parvis ovatis v. ovato-lanceolatis acutis v. obtusiusculis rigidulis tenuissime penniveniis subreticulatis minute puberulis, paniculis floribundis, floribus parvis sessilibus glabris, staminibus monadelphis, ovario longe stipitato.—Foliola 6-9 lin. longa, 3-4 lin. lata, a basi ad apicem folii decrescentia. Flores in genere minimi, vix 2½ lin. longi. Legumen ignotum.

Hab. Brazil, prov. Mattogrosso.

23. *M. INCORRUPTIBILE* (*Allem., Benth. in Mart. Fl. Bras. Leg. ined.*), inerme, foliolis 17-23 brevissime petiolulatis lanceolatis acutis novellis subtus pubescentibus tenuissime reticulato-penniveniis, racemis paucifloris, legumine rectiusculo ad semen non intruso rufo-tomentello.—*Nissolia incorruptibilis*, Vell. Fl. Flum. vii. t. 82; *Ma-chærium mucronatum*, Vog. Linnæa, xi. p. 191.—Foliola conferta, maxima 1 poll. longa, vix 3 lin. lata, pleraque minora. Flores non vidi. Legumen sub-3-pollicare.

Hab. Brazil, near Rio Janeiro.

24. *M. FIRMUM* (*Benth. in Ann. Mus. Vind. ii. p. 101, et in Mart. Fl. Bras. Leg. ined.*), inerme, foliolis 21-25 (-31) oblongo-sublanceolatis obtusiusculis utrinque tomentoso-pubescentibus v. supra glabris, panicula brevi, vexillo dense sericeo, staminibus monadelphis, legumine breviter stipitato tomentoso ad semen leviter intruso.—

Nissolia firma, Vell. Fl. Flum. vii. t. 83.—Foliola pollicaria v. maxima longiora, 4-5 lin. rarius 6 lin. lata, opaca, obtusiora quam in cæteris hujus seriei. Flores 5 lin. longi, fulvo-sericei. Legumen tomentosum, $2\frac{1}{2}$ -3-pollicare.

Hab. Brazil, near Rio Janeiro (*Mart. Herb. Fl. Bras.* n. 1109).

25. *M. LEGALE* (*Benth. in Ann. Mus. Vind.* ii. p. 101, et in *Mart. Fl. Bras. Leg.* ined.), inerme, foliolis 15-21 longiuscule petiolulatis oblongo-lanceolatis acutis supra glabris, novellis subtus petiolisque puberulis, paniculis oblongis folio brevioribus, floribus sessilibus, vexillo sericeo, staminibus monadelphis, legumine breviter stipitato rufo tomentello ad semen intruso.—*Nissolia legalis*, Vell. Fl. Flum. vii. t. 84.—Foliola $1\frac{1}{2}$ -2 poll. longa, 4-6 lin. lata, nitidula. Flores 5 lin. longi.

Hab. Brazil, prov. Rio Janeiro.

26. *M. VILLOSUM* (*Vog. Linnæa*, xi. p. 189), inerme, foliolis 17-25 oblongo- v. subovato-lanceolatis acutis subtus molliter villosis, paniculis oblongis brevibus, floribus sessilibus, vexillo sericeo, staminibus monadelphis, legumine stipitato glabro.—Foliola 2-3 poll. longa, supra sæpius glabra, acutiora quam in *M. lanato*, cui hæc species subsimilis. Flores 4 lin. longi, numerosi.

Hab. Brazil, prov. Minas Geraes and Saint Paul.

27. *M. MUCRONULATUM* (*Mart.*, *Benth. in Ann. Mus. Vind.* ii. p. 100, et in *Mart. Fl. Bras. Leg.* ined.), inerme, foliolis 11-15 ovato-lanceolatis suboblongisve acutis aristato-mucronatis basi subcordatis coriaceis subtus ramulisque pubescentibus, paniculis laxis folio brevioribus, floribus sessilibus, vexillo sericeo, staminibus monadelphis. ovario longe stipitato.—Hinc *M. acutifolio*, hinc *M. opaco* affine, Foliola $1\frac{1}{2}$ -2-pollicaria, rigida. Flores 4 lin. longi. Legumen non visum.

Hab. Brazil, prov. Minas Geraes and Pernambuco (*Gardner*, n. 2825).

28. *M. ACUTIFOLIUM* (*Vog. Linnæa*, xi. p. 187), inerme, foliolis 13-17 ovato-lanceolatis suboblongisve acutis muticis v. minute mucronulatis glabris v. subtus puberulis reticulato-penniveniis, paniculis laxiusculis folio brevioribus, floribus sessilibus, vexillo sericeo-villoso, staminibus monadelphis, legumine longe stipitato glabro.—*M. acutifolium*, *Mart.*, *Benth. in Ann. Mus. Vind.* ii. p. 101; *M. muticum*, *Benth. l.c.* p. 100.—Foliola $1\frac{1}{2}$ -2 $\frac{1}{2}$ -pollicaria, tenuiter coriacea. Flores 4-5 lin. longi. Legumen 2-2 $\frac{1}{2}$ poll. longum, ad semen 5 lin. latum.

Hab. Brazil, prov. Rio Janeiro, Minas Geraes and Piahy (*Gardner*, n. 1933).

29. *M. STIPITATUM* (*Vog. Linnæa*, xi. p. 189), inerme, foliolis 9-15 ovato-lanceolatis suboblongisve superne angustatis obtusis subglabris, paniculis laxis folio brevioribus, floribus parvis sessilibus, vexillo pubescente, staminibus monadelphis, legumine longe stipitato glabro.—

Nissolia stipitata, DC. Prod. ii. p. 258; *Machærium minutiflorum*, Tul. Arch. Mus. Par. ii. p. 94.—Foliola 1-1½ v. fere 2-pollicaria, a medio ad apicem acutata nec acuminata, at summo apice anguste obtusa, tenuiter subcoriacea. Flores vix 3 lin. longi. Legumen sub-2-pollicare, ad semen 3-4 lin. latum.

Hab. Brazil, prov. Rio Janeiro and Minas Geraes.

§ 4. RETICULATA.

30. *M. LEUCOPTERUM* (*Vog. Linnæa*, xi. p. 189), inerme v. stipulis hinc inde breviter subulato-spinescentibus, foliolis 5-7 oblongis subovatisve longe et obtuse acuminatis crebre penniveniis reticulatisque glabris v. subtus puberulis, paniculis brevibus dissitifloris, floribus sessilibus, vexillo tenuiter sericeo, staminibus monadelphis, legumine longiuscule stipitato pubescente hinc intruso, ala glabrata discolora. —*M. pungens*, Allem. Trab. Soc. Vell. p. 56.—Hinc *M. stipitato*, hinc *M. glabro* affine. Foliola 1½-2-pollicaria. Flores 3 lin. longi. Legumen 1½-2 poll. longum, basi 3-4 lin. latum.

Hab. Brazil, prov. Rio Janeiro.

31. *M. GLABRUM* (*Vog. Linnæa*, xi. p. 187), inerme, foliolis 7-9 oblongis longe et obtuse acuminatis crebre penniveniis reticulatisque glabris v. subtus puberulis, paniculis brevibus, legumine longiuscule stipitato glabro venoso ad semen vix intruso.—Specimina fructifera sola nota. Species vix a *M. leucoptero* differt legumine majore rectiore.

Hab. Brazil, *Sello*.

32. *M. VIOLACEUM* (*Vog. Linnæa*, xi. p. 186), inerme, foliolis 7-9 oblongis obtuse acuminatis rigidulis reticulato-penniveniis subtus petiolis ramulisque tenuissime puberulis, racemis paniculatis folio brevioribus tomentosis, floribus sessilibus, vexillo sericeo, staminibus monadelphis.—Foliola 1½-2½ poll. longa, 6-9 lin. lata. Flores circa 5 lin. Legumen ignotum.

Hab. South Brazil, near Rio Janeiro?

Near *M. secundiflorum*, but with narrower leaflets and larger flowers, remarkable in all the specimens I have seen by the stamens with large anthers slightly protruding from the keel.

33. *M. SECUNDIFLORUM* (*Mart. Benth. in Ann. Mus. Vind.* ii. p. 100, *et in Mart. Fl. Bras. Leg.* ined.), inerme, ramis foliisque glabris, foliolis 3-7 ovatis v. oblongis breviter acuminatis obtusisve rigidulis concoloribus reticulato-penniveniis, racemis paniculatis folio subbrevioribus, floribus sessilibus, vexillo sericeo, staminibus monadelphis. —*M. leiocarpum*, *Vog. Linnæa* xi. p. 203 ex descr.; *Nissolia lanceolata*, Vell. Fl. Flum. vii. t. 87?—Siccitate nigrescit. Foliola pleraque 2-3 poll. longa, 1-1½ poll. lata. Flores 2½-3½ lin. longi. Legumen 1½ v. vix 2 poll. longum, ad semen 3 lin. latum, ala 5-6 lin. lata.

Hab. Brazil. Common about Rio Janeiro (*Mart. Herb. Bras.* n. 160;

Vauthier, n. 70 Hb. DC. or n. 73 Hb. Hook.). Varies considerably in the size of the leaflets and of the flower.

34. *M. SALZMANNI* (*Benth. in Mart. Fl. Bras. Leg. ined.*), inerme, ramis folisque glabris, foliolis 7-9 ovali-oblongis obtusis v. vix acuminatis subcoriaceis nitidis reticulato-penniveniis discoloribus, racemis brevibus subpaniculatis, floribus sessilibus, vexillo sericeo, staminibus monadelphis.—A *M. secundiflora* differt floribus majoribus (4-4½ lin. longis), legumine bi-pollicari ad semen 8 lin. lato, ala pollicem lata.

Hab. Brazil, near Bahia.

35. *M. ALLEMANI* (*Benth. in Mart. Fl. Bras. Leg. ined.*), inerme, foliolis 3-7 ovatis oblongisve acuminatis tenuiter reticulato-penniveniis glabris, racemis longiusculis folio brevioribus, floribus sessilibus rufo-tomentosis (staminibus diadelphis?), legumine longe stipitato glabro glaucescente.—*M. scleroxylon*, Allem. Trab. Soc. Vell. p. 56, non Tul.—Legumen *M. brasiliensis*; foliola majora (2-4-pollicaria) et sæpe 3 tantum.

Hab. Brazil, near Rio Janeiro.

36. *M. BRASILIENSE* (*Vog. Linnæa*, xi. p. 185), inerme v. stipulis hinc inde indurato-spinescentibus, foliolis 5-9 ovatis oblongisve acuminatis, novellis pilosis, adultis glabris rigidulis concoloribus reticulato-penniveniis, racemis laxiusculis folio brevioribus, floribus subsessilibus ferrugineo-villosis, staminibus diadelphis, legumine longe stipitato glabro glaucescente.—*M. ciliatum*, Benth. in Ann. Mus. Vind. ii. p. 99; *M. Luschnathianum*, Presl, Symb. Bot. ii. p. 26, t. 73.—Foliola 1-1½-pollicaria, fere semper undulata. Flores 4 lin. longi, villosi. Legumen 2-3-pollicare, ad semen 7-8 lin. latum, ala crassiuscula 9-10 lin. lata, stipite 4-5 lin. longo.

Hab. Brazil, common near Rio Janeiro (*Mart. Herb. Bras.* n. 285).

37. *M. DENSICOMUM* (*Mart., Benth. in Ann. Mus. Vind. ii. p. 99, et in Mart. Fl. Bras. Leg. ined.*), inerme v. stipulis hinc inde recurvo-spinescentibus, foliolis 7-9 ovatis acuminatis adultis glabris rigidulis concoloribus reticulato-penniveniis, racemis laxiusculis folio brevioribus, floribus sessilibus (villosis?), legumine longe stipitato glabro glaucescente ala discolori.—Foliola circiter pollicaria, vix undulata. Legumen pallidum, ala in sicco nigricante.

Hab. North Brazil, prov. Maranhão, *Martius*.

This should probably be united as a variety with the *M. brasiliensis*; but it has a somewhat different aspect, and comes from a very different part of Brazil, and the flowers are as yet unknown.

38. *M. ERIANTHUM* (*Benth. in Ann. Mus. Vind. ii. p. 99, et in Mart. Fl. Bras. Leg. ined.*), inerme, foliolis 13-17 ovali-oblongis acuminatis adultis glabris rigidulis concoloribus reticulato-penniveniis, racemis dense paniculatis, floribus subsessilibus ferrugineo-villosis,

staminibus diadelphis.—Foliola *M. brasiliensis*, sed numerosiora. Flores 5 lin. longi, petalis calycibusque dense villosis. Legumen ignotum.

Hab. Brazil, *Pohl*.

39. *M. VESTITUM* (*Vog. Linnæa*, xi. p. 190), inerme, foliolis 7–13 oblongis acuminatis nitidis concoloribus reticulato-penniveniis subtus ad costam petiolis ramulisque ferrugineo-tomentosis, racemis fasciculatis folio brevioribus, floribus subsessilibus rufo-villosis, staminibus diadelphis, legumine longiuscule stipitato glabro.—Foliola 1–1½-pollicaria. Partes novellæ, fere ut in *M. oblongifolio*, rufo-villosæ v. tomentosæ. Flores 5 lin. longi, iis *M. brasiliensis* similiores.

Hab. South Brazil, *Sello*, *Riedel*.

40. *M. TRISTE* (*Vog. Linnæa*, xi. p. 416), inerme, foliolis 5–10 elliptico-ovato-oblatis acuminatis subopacis margine subtusque et racemis dense fusco-ferrugineo-pubescentibus, racemis folio brevioribus, floribus subsessilibus subsericeis, staminibus diadelphis.

Hab. Rio Janeiro, *Luschnath*.

I have not seen this plant; but, from Vogel's detailed description, it appears to me to be scarcely distinct from the last.

41. *M. OBLONGIFOLIUM* (*Vog. Linnæa*, xi. p. 184), inerme v. stipulis hinc inde spinescentibus, foliolis 5, rarius 7, oblongis ovatisve obtusis v. obtuse acuminatis tenuiter reticulato-penniveniis subtus ramulisque rufo-tomentosis villosisve, racemis brevibus, floribus subsessilibus, vexillo hirsuto, staminibus monadelphis, legumine stipitato glaberrimo.—*M. verrucosum*, *Vog. Linnæa*, xi. p. 183; *M. villosulum*, *Mart. Herb. Fl. Bras. n. 159*; *M. puberulum*, *Mart.*, *Benth. in Ann. Mus. Vind. ii. p. 99*; *M. heterophyllum*, *Presl, Symb. Bot. ii. p. 26, t. 72*.—Foliola quoad formam quam maxime variabilia, nunc omnia elliptico-oblonga 1–2-pollicaria, nunc nonnulla v. omnia ovata 2–3-pollicaria, v. parva et subcordata. Flores circa 5 lin. longi. Legumen circa 2½ poll. longum, prope basin 5 lin. latum, ad semen vix intrusum.

Hab. South Brazil, common near Rio Janeiro, and extends from San Paolo to Bahia (*Gardner*, n. 24; *Vauthier*, n. 133; *Blanchet*, n. 3777).

42. *M. SEEMANNI* (*Benth. in Seem. Bot. Her. p. 110*), inerme, foliolis 11–13 parvulis ovatis oblongisve obtusis subacuminatis basi rotundatis subcordatisve nitidulis pilosulis tenuissime reticulato-penniveniis, racemis brevibus confertis ferrugineo-tomentosis, floribus sessilibus rufo-sericeis (staminibus diadelphis?), legumine longe stipitato fusco-tomentoso.—Foliola ½–1½ poll. longa, 5–6 lin. lata, breviter petiolulata, sæpius obliqua, novella rufo-villosa, adulta præter costam glabrescentia, concoloria. Inflorescentia fere *Drepanocarpi inundati*, racemis (seu spicis) vix pollicaribus ramosis recurvis, confertifloris. Bracteolæ orbiculatæ. Flores 3½ lin. longi. Calyces uti petala molliter rufo-sericei. Stamen vexillare anthesi peracta solutum. Legumen 3-polli-

care, ad semen 5-6 lin. latum, leviter curvatum, ala falcata medio 9 lin. lata, undique fusco-tomentosum v. velutinum.

Hab. Central America, on the Volcano de Chiriqui, in Veraguas, *Seemann*; Venezuela, *Fendler*, 2nd coll. n. 1685.

43. *M. PEDICELLATUM* (*Vog. Linnæa*, xi. p. 202), inerme, foliolis 5-7 ovatis acuminatis reticulato-penniveniis ramulisque glabris, racemis laxis brevibus, floribus pedicellatis fulvo-sericeis, bracteolis parvis, staminibus diadelphis, ovario stipitato villosus.—*Nissolia debilis*, Vell. Fl. Flum. vii. t. 81?—A præcedentibus facile distinguitur floribus pedicello 1-1½ lin. longo fultis. Foliola sesquipollicaria v. maxima duplo majora. Flores 5 lin. Legumen ignotum.

Hab. Brazil, near Rio Janeiro.

44. *M. BRACTEATUM*, sp. n., inerme, foliolis 7-11 oblongis breviter acuminatis coriaceis nitidis concoloribus reticulato-penniveniis demum glabratis, panícula ampla laxa rufo-villosa, floribus pedicellatis, bracteolis calycem æquantibus, vexillo piloso, legumine rufo-hirto breviter stipitato.—Foliola 1½-2-pollicaria, longe petiolulata. Stipulæ lanceolatae, rigidæ, caducæ. Folia adulta undique glabrata. Panícula dense rufo-velutina, racemis elongatis divaricatis. Pedicelli fructiferi 2-3 lin. longi. Calyx 3 lin. longus, rufo-sericeus, distincte dentatus, dente infimo circa 1 lin. longo. Bracteolæ ovatae, obtusæ, fere 4 lin. longæ, calycem includentes. Petalorum nonnisi vestigia vidi. Legumen 2½ poll. longum, ad semen incurvum, hinc introrsum, circa 6 lin. latum, ala supra medium 8-9 lin. lata.

Hab. New Granada, near the west coast, *Barclay*.

45. *M. ACUMINATUM* (*H. B. et K. Nov. Gen. et Sp.* vi. p. 391), inerme, foliolis 3-5 ovatis oblongisve longe acuminatis submembranaceis concoloribus reticulato-penniveniis glabris, racemis brevibus axillaribus, floribus sessilibus, vexillo fusco-pubescente, staminibus diadelphis, legumine stipitato glabro reticulato.—*Nissolia acuminata*, DC. Prod. ii. p. 258.—Pubes in partibus novellis tenuissima. Folia adulta glabrata. Foliolum terminale sub-3-pollicare, 1-1½ poll. latum, lateralia minora, omnia in acumen longum obtusum contracta. Racemi 1-1½-pollicares, ramosi, laxiores quam in *M. Seemannii*. Flores 3-3½ lin. longi, vexillo multo minus villosus quam in *M. brasiliense* aliisque affinibus. Legumen 3-pollicare, ad semen curvatum et 6 lin. latum, ala falcata 8-12 lin. lata apice rotundata, junius adpresse puberulum, denum glabrescens, stipite 3-4 lin. longo.

Hab. Venezuela, *Humboldt & Bonpland*, *Fendler*, n. 1913.

β, *latifolium*, foliolis latioribus abruptius acuminatis et sæpe ex toto majoribus, legumine longiore glabriore, ala sæpius acutata.

Hab. Central America and South Mexico; Nicaragua, *Ærsted*; Xalapa, *Galeotti*; Mount Orizaba, *Broteri*, n. 1031.

46. *M. LEIOPHYLLUM* (*Benth. in Ann. Mus. Vind.* ii. p. 100), inerme v. stipulis breviter recurvo-spinescentibus, ramulis inflorescentiaque

viscido-puberulis, foliolis 7-9 ovatis v. elliptico-oblongis læte virentibus tenuiter penniveniis subreticulatis glabriusculis, racemis breviter paniculatis confertifloris, floribus sessilibus rufo-sericeis, staminibus monadelphis, leguminis ala breviter oblonga.—*Nissolia leiophylla*, DC. Prod. ii. p. 258; *Machærium surinamense*, Miq. Stirp. Surin. p. 21.—Habitum et foliis *Drepanocarpum cristacastrensem* refert. Foliola inter se sæpe inæqualia, terminali sub-3-pollicari, lateralibus dimidio minoribus, v. omnia $2\frac{1}{2}$ -3-pollicaria. Paniculæ sæpe ramossissimæ at foliis breviores et confertifloræ; undique rufo-tomentosæ. Flores $3\frac{1}{2}$ -4 lin. longi. Legumen bipollicare, crasso-coriaceum, sublignosum, ad semen 9-10 lin. latum et hinc intrusum, apice in alam coriaceam vix longiorem quam latam attenuatum.

Hab. Guiana, Surinam, *Hostmann*, n. 256 & 1198; Cayenne, *Martin* and others; British Guiana, *Parker*, *Schomburgk*, 1st coll. n. 482, 2nd coll. n. 41; and (apparently the same species, but with rather longer and more equal leaflets) Venezuela, *Fendler*, n. 2318. These specimens are, however, not in fruit.

The species comes very near to *Drepanocarpus cristacastrensis*; but the pod being more decidedly winged, it must be placed in *Machærium*.

47. M.? SCHOMBURGKII (*Benth. in Hook. Journ. Bot.* ii. p. 67), inerme, foliolis subquinis oblongis acuminatis coriaceis nitidis concoloribus reticulato-penniveniis subglabris, spicis fasciculatis abbreviatis ferrugineo-sericeis, floribus sessilibus imbricatis, vexillo glabro, staminibus monadelphis.—Arbor. Folia adulta præter costam glabra, sub-3-pollicaria, $1-1\frac{1}{2}$ poll. lata, rigide coriacea, petiolulo brevi. Stipulæ ovatæ, striatæ, rigidæ. Spicæ floridæ $1-1\frac{1}{2}$ -pollicares. Bracteæ ovato-triangularæ, 2 lin. longæ. Bracteolæ ovatæ, paullo breviores. Flores fere 6 lin. longi. Calyx dense rufo-sericeus, laciniis ad quartam partem attingentibus. Carinæ petala dorso imbricantia, nec connata. Ovarium sessile, rectum, villosissimum, biovulatum.

Hab. British Guiana, *Rob. Schomburgk*, 1st coll. n. 327, 2nd coll. n. 254, *Rich. Schomburgk*, n. 385; also Surinam (*Miquel in Linnæa*, xviii. p. 577).

The pod being unknown, and there being some slight discrepancies in the flowers, the genus of this plant is as yet uncertain.

48. M. OPACUM (*Vog. Linnæa*, xi. p. 187), inerme, foliolis 11-17 cordato-ovatis coriaceis subtus pubescentibus, petiolis inflorescentiaque molliter tomentosis, paniculis oblongis floribundis folio brevioribus, floribus sessilibus, vexillo sericeo, staminibus monadelphis, legumine stipitato glabro.—*M. campestre*, Mart., *Benth. in Ann. Mus. Vind.* ii. p. 100.—Foliola pleraque bipollicaria, late cordata, rigide coriacea. Flores 3-4 lin. Legumen $2-2\frac{1}{2}$ -pollicare, ad semen 6 lin. latum.

Hab. Brazil, prov. Minas Geraes and Goyaz.

The veins of the leaflets are very prominent on the under side, but not so regular and parallel as in the following group.

§ 5. PENNINERVIA.

49. *M. LANATUM* (*Tul. in Arch. Mus. Par.* iv. p. 96), inerme, foliolis 11–21 oblongis v. ovali-oblongis obtusis utrinque molliter tomentoso-villosis penniveniis, paniculis oblongis floribundis folio brevioribus, floribus sessilibus, vexillo sericeo, staminibus monadelphis.—Foliola $1\frac{1}{2}$ –2-pollicaria. Flores circa 4 lin. longi. Legumen non visum.

Hab. Brazil, prov. Minas Geraes.

At first sight very near the *M. villosum*; but the leaflets are downy above as well as below, and the venation is rather that of the *Penninervia*.

50. *M. NIGRUM* (*Vog. Linnæa*, xi. p. 188), inerme, foliolis 11–15 ovali-oblongis obtusis v. rarius acutiusculis supra demum glabratis subtus dense subsericeo-pubescentibus elevato-penniveniis, paniculis laxis dense tomentosis, floribus sessilibus, vexillo sericeo, staminibus monadelphis, legumine tomentoso.—*M. velutinum*, Benth. in *Ann. Mus. Vind.* ii. p. 100; *Nissolia fruticosa*, Vell. *Fl. Flum.* vii. t. 86?—Foliola 2–3-pollicaria, venis primariis supra impressis subtus prominentibus. Flores 5 lin. longi. Legumen 2-pollicare, ad semen 4 lin. latum.

Hab. Brazil, near Rio Janeiro.

51. *M. LINDENIANUM*, sp. n., inerme, foliolis 5–9 ovalibus obtusissimis retusisve supra glabris lævibus, subtus elevato-penniveniis ferrugineo-tomentellis, panicula terminali floribusque ferrugineo-tomentosis, floribus sessilibus, staminibus monadelphis.—*M. ferrugineo* valde affine et forte varietas, differt floribus multo minoribus (vix 4 lin.) subsessilibusque et foliolis obtusioribus.

Hab. Caraccas, *Linden*, n. 1647.

52. *M. FERRUGINEUM* (*Pers. Syn.* ii. p. 276), inerme, foliolis 5–11 ovalibus oblongisve mucronato-acuminatis rarius obtusatis supra glabris lævibus subtus elevato-penniveniis ferrugineo-tomentosis puberulisve, panicula terminali ferrugineo-tomentosa, floribus pedicellatis rufo-tomentosis, staminibus monadelphis, legumine tomentoso.—*Nissolia quinata*, Aubl. *Pl. Gui.* ii. t. 297; *Nissolia ferruginea* et *N. diadelpha*, DC. *Prod.* ii. p. 258; *Machærium diadelphum*, *Vog. Linnæa*, xi. p. 182; *M. nervosum*, *Vog. l. c.* p. 186.—Foliola sæpe opposita, 3–5-pollicaria, margine sæpius recurva. Panicula pyramidata, floribunda. Flores subsemipollicares, vexillo rufo-tomentoso. Legumen 3-pollicare, ad semen 6 lin. latum.

Hab. North Brazil and Guiana (*Spruce*, n. 2900 & 3688); Surinam, *Hostmann*, n. 1304, and others; Cayenne, *Martin*, *Perrottet*, &c.; British Guiana, *Rob. Schomburgk*, 1st coll. n. 579, 2nd coll. n. 697 & 816, *Rich. Schomburgk*, n. 1079 & 1479.

53. *M. MACROPHYLLUM* (*Mart., Benth. in Ann. Mus. Vind.* ii. p. 99, et in *Mart. Fl. Bras. Leg.* ined.), inerme v. stipulis breviter indurato-spinescentibus, foliolis 5–7 amplis ovalibus obtusis coriaceis glabris v. subtus tenuissime ferrugineo-pubescentibus crebre penniveniis,

paniculis amplis, floribus subsessilibus, vexillo sericeo, staminibus diadelphis.—Foliola 3-5-pollicaria. Panicula sæpe pedalis. Flores 5-5½ lin. longi. Legumen non visum.

Hab. North Brazil. The Santarem plant from Spruce's collection, distributed under this name, is however a different species, *M. floribundum*.

54. *M. KEGELII* (*Meisn. Linnæa*, xxi. p. 257), stipulis indurato-spinulentibus, foliolis 11-15 amplis ovalibus oblongisve acuminatis coriaceis nitidis crebre penniveniis glabris, panicula terminali floribunda, vexillo sericeo.—Foliola 2-3-pollicaria.

Hab. Surinam, *Kegel*, n. 1189.

This plant is unknown to me; but, from Meisner's description, it must be very near the *M. macrophyllum*, but with more leaflets.

55. *M. ERIOSTEMON* (*Benth. in Mart. Fl. Bras. Leg. ined.*), inerme? foliolis 5-7 obovali-oblongis breviter acuminatis opacis subtus inflorescentiaque tenuiter sericeo-puberulis dissite penniveniis, floribus sessilibus paniculatis, vexillo sericeo, staminibus diadelphis.—Foliola 2½-3½-pollicaria. Flores circa 4 lin.

Hab. South Brazil, near Mandioca, *Riedel*.

Described many years since, from a specimen belonging to the St. Petersburg Herbarium, but not now compared with the allied species, and therefore in some degree doubtful.

56. *M. FLORIBUNDUM* (*Benth. in Mart. Fl. Bras. Leg. ined.*), inerme v. stipulis breviter spinulentibus, foliolis 7-9 amplis ovali-oblongis acuminatis subcoriaceis glabris v. subtus minute puberulis dissite penniveniis, panicula ampla floribunda, petalis glabris, staminibus monadelphis.—*M. macrophyllum*, *Benth. in Pl. Spr. exs.*, non *Mart.* Foliola 3-5-pollicaria. Panicula subpedalis. Flores circa 4 lin. longi. Legumen 3-4-pollicare, ad semen 9-12 lin. latum.

Hab. North Brazil and Guiana, near Santarem, *Spruce*; Cayenne, *Martin*; British Guiana, *Rob. Schomburgk*, 2nd coll. n. 108, *Rich. Schomburgk*, n. 97.

This, which I had at one time mistaken for the *M. macrophyllum*, differs in its smaller flowers with the petals quite glabrous, in the tenth stamen united with the others, and several other minor points.

β, *parviflorum*, floribus vix 3 lin. longis.

Hab. Eastern Peru, near Tarapoto, *Spruce*, n. 4544.

I can perceive no other difference than the smaller flowers.

Doubtful Species.

The *Nissolia dubia*, *Poir.*, *N. microptera*, *Poir.*, *N. retusa*, *Willd.*, and *N. reticulata*, *Lam.*, are all too imperfectly described to be recognized, but they are all probably synonyms to some of the *Machæria* above enumerated.

V. DREPANOCARPUS, *Mey.*

Flos *Machærii*. Legumen late falcatum v. fere in orbem curvatum, plano-compressum, crasso-coriaceum, apice non vel vix attenuatum, indehiscens, monospermum, sutura vexillari (seminifera) intrusa, carinali valde arcuata. Semen magnum, compressum, reniforme, radícula inflexa.—Caulis arborescens v. alte scandens. Habitu, foliis et inflorescentia *Machæriis Lineatis* v. *Reticulatis* adeo conformis, ut genera, legumine deficiente, nequaquam distinguenda.

§ 1. *Lineati*. Foliolorum venæ primariæ a costa divergentes, crebræ, parallelæ, vix anastomosantes. Stipulæ spinescentes.

1. *D. lunatus*. (America trop. et Africa occid.)

2. *D. aristulatus*. (Brasilia borealis.)

3. *D. ferox*. (America tropica.)

4. *D. microphyllus*. (America centralis.)

§ 2. *Reticulati*. Foliola reticulato-pennivenia. Armati v. inermes.

5. *D. floridus*. (Brasilia.)

6. *D. cristacastrensis*. (America tropica.)

7. *D. frondosus*. (Brasilia bor.)

8. *D. inundatus*. (America tropica.)

§ 1. LINEATI.

1. *D. LUNATUS* (*G. F. W. Mey., DC. Prod.* ii. p. 420), stipulis spinescentibus, foliolis 5-11 oblongis obovatisve obtusis retusisve coriaceis lineato-venosis.—*Pterocarpus lunatus*, Linn. fil.; *Sommerfeldtia obovata*, Schum. et Thonn. Beskr. Pl. Guin. p. 331.—Foliola forma et magnitudine varia, maxima $1\frac{1}{2}$ -pollicaria v. paullo longiora. Panicula terminalis foliata. Flores subsessiles, 3-4 lin. longi. Vexillum sericeo-puberulum. Carina et ovarium valde incurva. Stamina monadelphæ. Legumen in orbem completum curvatum, $1-1\frac{1}{2}$ poll. diametro.

Hab. Tropical America and Western Africa, chiefly near the sea-shore, North Brazil, Surinam, *Hostmann*, n. 446, and others; Cayenne, British Guiana, several of the West Indian Islands, Central America, near Segovia, *Ærsted*; South Mexico, near Vera Cruz, *Galeotti*, n. 3253, *Linden*, n. 1321. Occurs also in most collections from western tropical Africa.

2. *D. ARISTULATUS* (*Spruce, Benth. in Mart. Fl. Bras. Leg.* ined.), stipulis demum recurvo-spinescentibus, foliolis 11-15 oblongis apice rotundatis aristato-subpungentibus crebre subparallele venulosis, panicula floribunda pyramidata subsericeo-pubescente, staminibus monadelphis.—*Habitus D. ferocis*. Foliola $1\frac{1}{2}$ -2 poll. longa.

Hab. North Brazil.

The pod is unknown; but I have referred the plant to *Drepanocarpus* on account of its close affinity with the *D. ferox*.

3. *D. FEROX* (*Mart., Benth. in Ann. Mus. Vind. ii. p. 96, et in Mart. Fl. Bras. Leg. ined.*), stipulis demum uncinato-spinescentibus, foliolis 19–35 oblongis obtusis retusisve muticis crebre subparallele venulosis, panicula floribunda fusco-pubescente, staminibus profunde isadelphis.—Foliola 1–2-pollicaria. Flores brevissime pedicellati, 5 lin. longi. Vexillum extus sericeum. Carina valde incurva. Ovarium apice curvatum. Legumen fere 2 poll. longum, $1\frac{1}{2}$ poll. latum, fere annulatum, apice tamen breviter rectum et paullulum attenuatum.

Hab. Frequent in North Brazil. Also in British Guiana, *Schomburgk*, 1st coll. n. 267, and a variety with rather smaller leaflets in Venezuela, on the Upper Casiquiare and Orenoco, *Spruce*, n. 3213.

4. *D. ? MICROPHYLLUS* (*G. F. W. Mey., DC. Prod. ii. p. 420*), stipulis demum uncinato-spinescentibus, foliolis 15–25 oblongis obtusis tenuissime subparallele venulosis, panicula floribunda, calycibus parvis glabris, staminibus monadelphis.—*Habitus D. ferocis*. Foliola 1– $1\frac{1}{2}$ -pollicaria, supra nitidula, subtus laxe puberula v. demum glabrata. Panicula ampla, ramosissima. Flores conferti, brevissime pedicellati, $2\frac{1}{2}$ –3 lin. longi. Calyx vix lineam longus. Vexillum dense rufo-sericeum.

Hab. Central America, frequent about Panama, *Hinds*, *Seemann*, *Duchassaing*, &c.

I have retained this also in *Drepanocarpus*, on account of its evident affinity with the *D. ferox*, from which it differs chiefly in the smaller flowers and leaflets, and in the sheath of the stamens not split at the back. Should the fruit prove to be that of a *Machærium*, it would range near the *M. angustifolium*.

§ 2. RETICULATI.

5. *D. ? FLORIDUS* (*Mart., Benth. in Ann. Mus. Vind. ii. p. 96, et in Mart. Fl. Bras. Leg. ined.*), stipulis spinescentibus subrectis, foliolis 21–31 parvis oblongis reticulato-penniveniis subtus sericeo-pubescentibus, panicula floribunda rufo-sericea, vexillo sericeo, staminibus monadelphis.—Foliola 4–6 lin. longa, obtusa. Flores in speciminibus Bahiensibus 4 lin., in aliis 3 lin. longi.

Hab. Brazil, prov. Bahia and Rio Janeiro (*Mart. Herb. Fl. Bras. n. 158*).

The fruit is unknown; and I have great doubts whether this may not rather be a species of *Machærium*, nearly allied to *M. scleroxylon*.

6. *D. CRISTACASTRENSIS* (*Mart., Benth. in Ann. Mus. Vind. ii. p. 96, et in Mart. Fl. Bras. Leg. ined.*), inermis, foliolis 9–15 oblongis ellipticis sublanceolatisve acutis membranaceis reticulato-penniveniis, panicula terminali ferrugineo-villosa, staminibus monadelphis, legumine reniformi falcato.—Foliola majora usque ad 3 poll. longa et pollicem lata, inferiora ejusve folii decrescentia, in sicco late-virentia. Panicula subsemipedalis. Flores sessiles, 3–4 lin. longi. Vexillum

plus minus sericeum. Legumen $1\frac{1}{2}$ -pollicare, minus incurvum quam in *D. lunato*.

Hab. Frequent in North Brazil, also British Guiana, *Robt. Schomburgk*, 2nd coll. n. 766, *Rich. Schomburgk*, n. 1495.

Closely resembles some forms of *Machærium leiophyllum*; but the pod is not at all winged. Spruce's specimens, numbered 2552, from the Rio Uaupés, have broader leaflets; and having no pods, it is impossible to say whether the plant should be referred as a variety to the *Drepanocarpus cristacastrensis*, or to the *Machærium leiophyllum*.

7. *D.?* *FRONDOSUS* (*Mart.*, *Benth. in Ann. Mus. Vind.* ii. p. 96, et in *Mart. Fl. Bras. Leg.* ined.), stipulis (parvis) indurato-spinescentibus, foliolis sub-7 ovatis oblongisve breviter acuminatis submembranaceis reticulato-penniveniis, panicula terminali brevi fusco-pubescente, staminibus monadelphis.

Hab. North Brazil, *Martius*.

Very near the last species and the *Machærium leiophyllum*, differing from both in the spinescent stipules. The fruit is unknown; and it remains, therefore, uncertain to which genus it should be referred.

8. *D. INUNDATUS* (*Mart.*, *Benth. in Ann. Mus. Vind.* ii. p. 96, et in *Mart. Fl. Bras. Leg.* ined.), inermis, foliolis 5-9 (rarius 3) ovatis acuminatis coriaceis nitidis tenuissime reticulato-penniveniis, racemis axillaribus brevibus confertis, vexillo dense tomentoso, staminibus monadelphis.—Frutex volubilis. Foliola glabra, 1-3-pollicaria. Racemi fasciculati, vix pollicares. Flores sessiles, 3-4 lin. longi. Legumen *D. lunati*, nisi tomento brevissimo at denso rufescens.

Hab. Tropical America, North Brazil, and Mattogrosso, Surinam, *Wulfschnagel*, n. 835; Cayenne, *Martin* and others; British Guiana, *Robt. Schomburgk*, 1st coll. n. 520, 2nd coll. n. 845, or in some herbaria, 814, *Rich. Schomburgk*, n. 1454; Venezuela, on the Casiquiare, *Spruce*, n. 3178.

Doubtful Species.

D. dubius, H. B. et K., and *D. cyathiformis*, DC., are not sufficiently described to be recognizable.

D. falcatus, Miq., from Surinam, has, according to specimens transmitted by him, so exactly the foliage of *Drepanocarpus lunatus*, with detached fruits of *Dalbergia inundata*, that, unless he has seen specimens with the fruits attached, we cannot but conclude there must have been some mismatching.

In Coulter's Mexican collection there is a flowering specimen with numerous small rigid leaves, from Bolaños, which appears to me to be an undescribed *Drepanocarpus* or *Machærium*; but without further materials, I feel unwilling to attempt to publish it.

VI. TIPUANA, *Benth.*

Calyx turbinato-campanulatus, truncato-5-dentatus v. subbilabiatus. Carinæ petala dorso imbricantia v. leviter connata. Stamina monadelphæ, vagina hinc fissa, v. vexillare solutum. Antheræ versatiles. Stylus basi dilatatus. Ovarium uni- v. pauciovulatum. Legumen stipitatum, samaroidem, indehiscens, basi crasso-convexum ovatum, 1-3-spermum, superne productum in alam cultriformem transverse venosam hinc styli basi persistente incrassato-marginatam. Semen solitare v. 2 subcontigua isthmo duro separata, oblique oblonga, transversa, subincurva, radícula brevi conica curvata.—Arbores speciosi, inermes. Folia impari-pinnata, foliolis plerisque alternis exstipellatis. Paniculæ terminales, laxæ ramosæ. Bracteolæ subnullæ. Flores speciosi, lutei v. pallide purpurascens.

1. *T. MACROCARPA* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 5-7 late-ovatis retusis subcordatis coriaceis reticulato-venosis, vexillo late ovato, alis oblongis carina minoribus, legumine lævi.—*Machærium macrocarpum*, Benth. in Hook. Journ. Bot. ii. p. 67; *Andira cinerascens*, Mart. Herb. Fl. Bras. n. 1156.—Foliola $1\frac{1}{2}$ -2-pollicaria, adulta glabra et nitida. Panicula semipedalis, laxiflora. Flores lutei, 8-9 lin. longi. Legumen cum ala 3-3½-pollicare, 1 poll. latum.

Hab. Brazil, prov. Ceara (and Bahia?) (*Gardner*, n. 1539).

2. *T. HETEROPTERA* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 11-13 ovali-oblongis acutis penniveniis margine subdenticulatis, vexillo late orbiculato, alis oblongis carina paullo majoribus, legumine lævi.—*Machærium heteropterum*, Allem. in Trab. Soc. Vell. p. 4 cum ic.—Foliola 2-3-pollicaria. Corolla dilute purpurascens, petalis basi lutescentibus.

Hab. Brazil, prov. Rio Janeiro.

I have not seen any specimens; but it is very fully described and figured by Allemão in the work above quoted.

3. *T. SPECIOSA* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 11-21 oblongis emarginatis membranaceis subparallele venulosis integerrimis, vexillo late orbiculato, alis latissime ovatis carina multo majoribus, legumine venoso.—*Machærium Tipu*, Benth. in Kew Journ. Bot. v. p. 267, in adnot.—Foliola subsesquipollicaria. Panicula brevis, laxiflora. Flores lutei. Calyx 5 lin., corolla duplo longior.

Hab. Eastern Bolivia, prov. Porana, *Tweedie*; prov. Tomina, *Weddell*; and a variety with more numerous and rather smaller leaflets near Mizque in Bolivia, *D'Orbigny*, n. 912.

VII. PLATYPODIUM, *Vog.*CALLISEMÆA, *Benth.*

Calyx turbinato-campanulatus, 5-dentatus, subbilabiatus. Vexillum amplum. Carinæ petala dorso apice connata. Stamina 2 (vexillare et

carinale) libera, cætera in phalanges 2 tetrandras coalita. Antheræ versatiles. Ovarium pluriovulatum. Legumen stipitatum, samaroideum, indehiscens, apice lignosum, 1-2-spermum, basi in alam oblongam oblique venosam attenuatum. Arbores speciosæ, inermes. Folia impari- v. abrupte pinnata, foliolis alternis v. irregulariter oppositis exstipellatis. Racemi in axillis superioribus laxi. Flores lutei.

1. *P. GRANDIFLORUM* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 8-14 glabris v. subtus tenuissime puberulis, racemis elongatis laxis, vexillo latissimo profunde emarginato, alis oblique obovatis.—*Callisemæa grandiflora*, Benth. in Ann. Mus. Vind. ii. p. 105.—Foliola subpollicaria, crebre parallele venulosa. Racemi 3-6-pollicares. Calyx 5-6 lin. longus.

Hab. Brazil, *Pohl*.

2. *P. ELEGANS* (*Vog. Linnæa*, xi. p. 422), foliolis 10-20 subtus petiolis ramulisque pubescentibus, racemis folio brevioribus, vexillo subintegro, alis oblongis.—*Callisemæa sericea*, Benth. in Ann. Mus. Vind. ii. p. 105.—Foliola iis *P. grandiflori* nunc minora nunc majora, rigidiora. Racemi et pedicelli breviores. Flores minores. Legumen cum ala $2\frac{1}{2}$ -3 poll. longum.

Hab. Brazil, prov. Minas Geraes, Goyaz, Piahy, and Bahia (*Gardner*, n. 2140 & 3655; *Blanchet*, n. 2790).

- β, *major*, foliolis floribusque majoribus.—*Platypodium viride*, *Vog. Linnæa*, xi. p. 420; *Callisemæa pubescens*, Benth. in Ann. Mus. Vind. ii. p. 105.

Hab. Brazil, prov. Minas Geraes and Goyaz.

VIII. CENTROLOBIUM, *Mart.*

Calyx late campanulatus, basi obtusus, semi-4-fidus. Carinæ petala dorso apice connata. Stamina monadelphæ, vagina latere superiore fissa. Antheræ versatiles. Ovarium sub-3-ovulatum. Legumen sessile, ample samaroideum, indehiscens, basi crasso-coriaceum echinatum, superne in alam falcato-oblongam productum, stylo ad basin alæ laterali calcariformi. Semina 1-3, subcontigua, isthmis transversis sublignosis separata.—Arbores Americanæ, inermes. Folia ampla, impari-pinnata, foliolis irregulariter oppositis alternisque exstipellatis. Paniculæ terminales, amplæ. Pedicelli solitarii. Flores mediocres (albo-violacei?), petalis glabris, calyce ferrugineo.

1. *C. ROBUSTUM* (*Mart., Benth. in Ann. Mus. Vind. ii. p. 95, et in Mart. Fl. Bras. Leg. ined.*), foliolis 13-17 ovato-oblongis basi oblique rotundatis supra puberulis subtus glabris resinoso-punctatis intra venas tenuissime venulosis, legumine longe echinato stylo adscendente.—*Nissolia robusta*, Vell. Fl. Flum. vii. t. 85; *Centrolobium minus*, Presl, Symb. Bot. ii. p. 26, t. 74.—Foliola 3-5-pollicaria. Panicula

$\frac{1}{2}$ –1-pedalis. Calyx 5–6 lin. longus. Petala vix dimidio longiora. Legumen cum ala 6–8 poll. longum.

Hab. Brazil, near Rio Janeiro.

2. *C. TOMENTOSUM* (*Benth. in Hook. Journ. Bot.* ii. p. 66, *et in Mart. Fl. Bras. Leg.* ined.), foliolis 13–17 ovatis oblongisve basi oblique truncato-subcordatis supra pubescentibus subtus ferrugineo-tomentosis inter venas transverse venulosis, legumine breviter echinato, stylo adscendente.—Foliola quam in præcedente sæpius latiora et submajora. Leguminis ala lator, spinæ breviores.

Hab. Brazil, prov. Minas Geraes and San Paulo.

3. *C. PARAENSE* (*Tul. in Arch. Mus. Par.* iv. p. 87), foliolis 7–13 late subcordato-ovatis membranaceis utrinque petiolis paniculisque ferrugineo-villosis, legumine longe echinato, stylo patente v. recurvo.—Stipulæ latæ, semipollicares, membranaceæ, diutius persistentes quam in præcedentibus. Foliola latiora, venis primariis subtus valde prominentibus, transversis tenuibus. Panicula quam in *C. tomentoso* minus ramosa. Legumen 7–8-pollicare.

Hab. North Brazil, in British Guiana in the Roraima district, *Rob. Schomburgk*, 2nd coll. n. 314; *Rich. Schomburgk*, n. 590. Also, apparently the same species, but with more glabrous and less decidedly cordate leaflets, near Angostura in Venezuela, *Purdie*.

IX. PTEROCARPUS, *Linn.*

Amphymenium, *H. B. et K.*, *Echinodiscus*, *Moutouchia et Phellocarpus*, *Benth.*, *Ancylocalyx*, *Tul.*

Calyx turbinato-campanulatus, basi acutus, sæpius incurvus, 5-dentatus, subbilabiatus. Carinæ petala dorso apice breviter connata v. sublibera. Stamina 10, nunc monadelpha vagina latere superiore fissa, nunc vagina utrinque fissa isadelpha, v. stamine vexillari soluto diadelpha $\frac{1}{2}$. Antheræ versatiles. Ovarium 2–6-ovulatum. Legumen compressum, indehiscens, orbiculatum v. ovatum, plus minus obliquum v. falcatum, stylo laterali v. rarius terminali, medio seminifero plus minus induratum v. incrassatum, circumcirca attenuato-alatum v. carinatum, nunc fere totum attenuato-coriaceum v. membranaceum. Semina 1–3, isthmis duris separata.—Arbores utriusque orbis inermes. Folia alterna, impari-pinnata. Foliola alterna v. irregulariter opposita, exstipellata. Racemi simplices v. laxè paniculati. Flores lutei, rarius albi violaceo mixti, sæpius speciosi. Petala glabra.

§ 1. *Ovario stipitato.*

* *Legumine subovali subrecto.*

1. *P. lucens.* (Africa tropica.)
2. *P. sericeus.* (Africa austr.-occid.)

** *Legumine suborbiculato acumine (stylo) valde laterali.*

3. *P. erinaceus.* (Africa tropica.)
4. *P. echinatus.* (Africa tropica.)
5. *P. santalinus.* (Peninsula indica.)
6. *P. Marsupium.* (Peninsula indica, Ceylona.)
7. *P. indicus.* (India austr., Archipelagus, China austr.)
8. *P. Draco.* (America tropica.)

§ 2. *Ovario sessili.*

9. *P. esculentus.* (Africa occid., Cayenna?)
10. *P. Rohrii.* (America tropica.)
11. *P. violaceus.* (Brasilia.)
12. *P. rufescens.* (Peruvia orient.)
13. *P. ancylocalyx.* (Brasilia sept.)
14. *P. villosus.* (Brasilia.)
15. *P. amphymenium.* (Mexico.)

1. *P. LUCENS* (*Lepr. in Guill. et Perr. Fl. Seneg.* i. p. 228), glaber v. minute glauco-sericeus, foliolis 3–5 ovatis oblongisve longe petiolulatis, racemis simplicibus, pedicellis calyce multo longioribus, stamine vexillari soluto, ovario stipitato villosulo biovulato, legumine stipitato obovato-suborbiculari glaucescente ala coriacea. — *P. abyssinicus*, Hochst., A. Rich. *Fl. Abyss.* i. p. 233. t. 45.—Totus glaucescit. Foliola $1\frac{1}{2}$ –2-pollicaria, obtusissima v. breviter et obtuse acuminata, supra nitidula, reticulato-venulosa. Racemi semipedales. Pedicelli 4–6 lin. longi. Vexillum vix margine crispulum. Carinæ petala dorso contigua at sæpius distincta. Legumen circa $1\frac{1}{2}$ poll. longum, 1 poll. latum, stylo subterminali, membranaceo-coriaceum, medio plus minus incrassatum, stipite 3–5 lin. longo.

Hab. Tropical Africa, in Senegambia and Abyssinia.

2. *P. SERICEUS*, sp. n., foliolis 3–5 late ovatis subtus v. utrinque sericeo-nitentibus, legumine breviter stipitato ovato-suborbiculari ala coriacea. — Specimen fructiferum. Partes novellæ dense sericeo-nitentes. Stipulæ inferiores oblongæ semipollicares, superiores lineares. Foliola bipollicaria, adulta supra glabrata nitida et insigniter reticulata, subtus sericeo-pubentia. Flores non vidi. Legumen fere *P. lucentis*, sed brevius stipitatum.

Hab. South Africa, on the Hex River and the Aapges River, *Burke*.

3. *P. ERINACEUS* (*Poir., DC. Prod.* ii. p. 419; *Guill. et Perr. Fl. Seneg.* p. 229. t. 54), foliolis 11–15 ovali-oblongis obtusis v. emarginatis subtus tomentosis, racemis paniculatis tomentosis, staminibus monadelphis diadelphisve $\frac{1}{5}$, legumine breviter stipitato suborbiculato stylo laterali medio echinato margine late membranaceo. — *P. Adansonii*, DC. *Prod.* ii. p. 419.—Specimina quæ vidi florida leguminibusve junioribus prædita foliis orbata sunt. Foliola ex icone et descr.

Guilleminii supracitatis 2-3-pollicaria, novella subtus rufo-sericea, adulta subtus brevissime et dense tomentosa, obtusiora quam in sequente et minime acuminata. Legumen circa 2 poll. diametro, molliter tomentosum.

Hab. Tropical Africa, Senegambia, *Leprieur*, *Heudelot*, n. 47 and 628.

4. *P. ECHINATUS* (*Pers.*? *DC. Prod.* ii. p. 419?), foliolis 11-15 ovatis oblongisve breviter et obtuse acuminatis glabris v. subtus minute puberulis, racemis paniculatis tomentellis, staminibus diadelphis $\frac{1}{9}$, legumine stipitato suborbiculato medio echinato margine late membranaceo stylo laterali.—*P. angolensis*, *DC. Prod.* ii. p. 419?—Foliola 2-3-pollicaria v. ramorum steriliū 4-pollicaria, nunc exacte ovata et basi subcordata, nunc elongato-oblonga, supra medium angustata, supra glabra nitida, subtus pubescentia, crebre parallele venosa et reticulato-venulosa. Rami floridi aphylli. Racemi laxi, 3-4-pollicares, minus tomentosi quam in præcedente. Pedicelli 2-3 lin. longi, bracteolis subulatis a calyce subdistantibus. Flores semipollicares, lutei. Petala crispula, carinalia vix connata. Ovarium brevissime stipitatum, biovulatum. Legumen 2-2½ poll. diametro, brevius longiusve stipitatum, tomentellum, medio setis longis rigidis echinatum, acumine (stylo) medium versus lateris superioris sursum v. deorsum spectans.

Hab. Western Tropical Africa, on the Niger, a common tree in the interior, where it is known under the name of "Cornwood," *Barter*.

It is probably a mere variety of *R. erinaceus* with more glabrous leaflets somewhat differently shaped, but I have not myself seen the leaves of the true *erinaceus* to compare.

5. *P. SANTALINUS* (*Linn. fil.*, *DC. Prod.* ii. p. 419), foliolis subternis (rarius 4-5) late ovatis emarginatis v. orbiculatis, racemis axillaribus ramosis, "stamine vexillari libero cæteris diadelphis $\frac{4}{5}$ " legumine longe stipitato oblique orbiculato medio incrassato inermi margine attenuato, stylo laterali.—Valde affinis *P. Marsupio*, differt imprimis foliolis latioribus et sæpissime 3 tantum.

Hab. East Indian Peninsula, *Wight*, *Heyne* (*Wall. Cat.* n. 5844).

Of this we have but very few very indifferent specimens, and I have not myself been able to examine the flowers.

6. *P. MARSUPIUM* (*Roxb. Pl. Corom.* ii. t. 116; *DC. Prod.* ii. p. 418), foliolis 5-7 (rarius 3) oblongis obovatisve retusis emarginatis v. vix acuminatis, racemis paniculatis, staminibus monadelphis v. demum isadelphis, legumine breviter stipitato oblique orbiculato tomentello medio incrassato venoso inermi margine late attenuato, stylo laterali.—*P. bilobus*, *Roxb.*, *G. Don.*, *Gard. Diet.* ii. p. 376.—Foliola 2-3 v. rarius 4-pollicaria, coriacea, nitida, crebre subparallele venosa, fere semper apice late rotundata et emarginata, rarissime breviter et obtuse subacuminata, glabra v. subtus minute puberula. Panicula laxa ramosa, folia vix superans, tenuissime fusco-tomentosa. Flores brevissime pedicellati, semipollicares. Petala lutea, margine crispula.

Ovarium breviter stipitato-biovulatum. Legumen $1\frac{1}{2}$ v. rarius 2 poll. diametro.

Hab. East Indian Peninsula, apparently frequent, occurring in most collections (*Wall. Cat.* n. 5842); also in Ceylon, *Walker, Thwaites*, *C. P.* n. 1495; and in Central India, on the Waree Hills below Munghyr, *Madden* (a variety with less obtuse leaves and a broader pod), approaching the *P. indicus*.

7. *P. INDICUS* (*Willd., DC. Prod.* ii. p. 419), foliolis 7–9 (rarius plurimis) ovatis acuminatis, racemis subramosis summis paniculatis, staminibus monadelphis demum isadelphis (vexillari rarius soluto) legumine stipitato oblique suborbiculato tomentello medio incrassato venoso inermi margine late attenuato stylo laterali.—*P. dalbergioides*, *Roxb. Fl. Ind.* iii. p. 236; *P. Wallichii*, *W. et Arn. Prod. Fl. Pen.* i. p. 267; *P. santalinus*, *Blanco Fl. Filip.* p. 561 non *Linn.*; *P. Zollingeri*, *Miq. Fl. Ned. Ind.* i. p. 136 ex char.—Foliola 2–3 pollicaria minus coriacea et venis magis reticulatis quam in *P. Marsupio*, pariter glabra v. subtus minute puberula. Racemi laxiores pedicellis 2–3 lin. longis. Legumen sæpius fere 2 poll. diametro, cæterum ei *P. Marsupii* simile.

Hab. Southern India and the Archipelago (*Wall. Cat.* n. 5845). In the Peninsula, *G. Thomson, Law*; Martaban, *Wallich*; Moolmyne, *MacLelland*; Mergui and Malacca, *Griffith*; Penang, *Wallich*; Andaman Islands (*Wall. Cat.* n. 5843); Sumatra, *Zollinger*, n. 3055; Java, *Perrottet, Junghuhn*; Philippine Islands, *Cuming*, n. 1227; South China, *Millelt, Beechey*.

The *P. flavus*, *Lour.*, and *P. obtusatus*, *Miq.*, both from the Archipelago, and described by *Miquel (Fl. Ned. Ind.* i. p. 136) from very insufficient materials, have nothing in the characters given to distinguish them from the common *P. indicus*.

8. *P. DRACO* (*Linn. ex parte, DC. Prod.* ii. p. 418), glaberrimus, foliolis 5–9 ovatis oblongisve acuminatis nitidis, racemis paniculatis, staminibus monadelphis v. demum isadelphis, legumine stipitato valde obliquo suberoso-incrassato venoso margine præsertim exteriore attenuato stylo laterali.—*P. officinalis*, *Jacq. Pl. Amer.* t. 183. f. 92? (ex icone vix recognoscendo); *Moutouchi suberosa*, *Aubl. Pl. Gui.* ii. p. 748. t. 299; *P. suberosus*, *Pers. Syn. Pl.* ii. p. 277; *P. crispatus*, *Fl. Mex.* in *DC. Prod.* ii. p. 418?—Species glabritie inflorescentiæ leguminis et omnium partium a cæteris omnibus distinguitur. Foliola 2–4 pollicaria, coriacea, venis primariis subdistantibus retique venularum utrinque conspicuis. Paniculæ laxæ, breves. Calyx nigrescens, valde obliquus. Legumen $1\frac{1}{2}$ poll. diametro.

Hab. Tropical America, Nicaragua in Central America, *Ærsted*; Guadaloupe; *Duchassaing*; Cayenne, *Martin*; Surinam, *Hostmann*, n. 381.

9. *P. ESCULENTUS* (*Schum. et Thonn. Beskr. Pl. Guin.* p. 330), foliolis 5-9 ovatis oblongisve acuminatis nitidis glabris, racemis simplicibus brevibus tomentosis, floribus subsessilibus, ovario sessili tomentoso, legumine sessili valde obliquo suberoso-incrassato rugoso margine exteriori attenuato, stylo laterali.—*P. santalinoides*, Lher. in DC. Prod. ii. p. 419?—Arbor parva, folia omnino *P. Rohrii*, foliola variant nunc pleraque 4 poll. longa, 2 poll. lata petiolo semipedali, nunc omnia dimidio minora, nunc in ramis sterilibus 4-6-pollicaria petiolo pedali. Racemi breviter pedunculati, 1-2-pollicares, densiflori, v. rarius semipedales laxioresque. Bracteolæ subulatæ, calyce breviores. Flores omnino *P. Rohrii*, pedicellis tamen brevissimis. Ovula 6. Legumen fere *P. Draconis* sed arcte sessile, et magis incrassatum et sæpius tomentellum.

Hab. West tropical Africa, where it is frequent, in Senegambia, *Heudelot*; Sierra Leone, *Oldfield*; on the Niger and Quorra, *Vogel*, *Barter*. Also Cayenne, from a fruiting specimen among *Martius*' plants, but perhaps introduced there by the negroes, who eat the seeds.

10. *P. ROHRII* (*Vahl., DC. Prod.* ii. p. 418), foliolis 5-9 ovatis oblongisve acuminatis nitidulis glabris, racemis simplicibus subramosisve tomentosis, pedicellis calyce brevioribus, ovario sessili tomentoso, staminibus monadelphis, legumine suborbiculato late membranaceo medio reticulato vix incrassato, stylo laterali.—*Amphymenium Rohrii*, H. B. et K. Nov. Gen. et Sp. vi. p. 380 in adnot.; *Phellocarpus floridus*, Benth. in Ann. Mus. Vind. ii. p. 106.—Foliola valde variabilia, nunc omnia ovata subcordata vix bipollicaria nunc, late v. anguste oblonga 3-5-pollicaria. Racemi longiores et laxiores quam in *P. esculento*, densiores et sæpius longiores quam in *P. violaceo* et *P. rufescente*. Legumen circa 2 poll. diametro.

Hab. Tropical America, North Brazil; Cayenne, *Martin*; British Guiana, *Parker*, *Rob. Schomburgk*, 1st coll. n. 34, 2nd coll. n. 222 and 459, *Rich. Schomburgk*, n. 136 and 733; Venezuela, *Funcke & Schlimm*, n. 585.

I have seen many Cayenne specimens, but mostly in flower only, and some of these may possibly be referrible to the *P. esculentus*.

11. *P. VIOLACEUS* (*Vog. Linnæa*, xi. p. 416), foliolis 5-7 ovatis subcoriaceis nitidulis glabris, racemis simplicibus, pedicellis calyce tomentoso longioribus, vexillo late maculato, staminibus monadelphis, ovario sessili tomentoso, legumine obovali-orbiculari late coriaceo-attenuato medio subreticulato, stylo excentrico.—*Phellocarpus laxiflorus*, Benth. in Ann. Mus. Vind. ii. p. 106; *Pterocarpus cultratus*, Vell. Fl. Flum. vii. t. 95? et *Nissolia reticulata*, Vell. l. c. t. 88?—Folia fere *P. Rohrii*, differt pedicellis 4-5 lin. longis et legumine minus dilatato ala crassiore coriacea nec membranacea.

Hab. South Brazil, near Rio Janeiro, whence it is frequently sent, but

I have seen the fruit only on *A. Cunningham's* specimens in the British Museum.

$\beta?$ *angustifolia*, foliolis 2-3 poll. longis 6-9 lin. latis, pedicellis brevioribus.

Hab. Brazil, prov. Bahia, *Blanchet*, n. 3785.

This may very possibly prove to be a distinct species when the pod becomes known.

12. *P. RUFESCENS*, sp. n., foliolis 7-9 ovatis oblongisve acuminatis subtus ad venas petiolisque rufo-tomentosis, racemis simplicibus calyce tomentoso longioribus, vexillo late maculato, staminibus monadelphis, ovario sessili tomentoso, legumine suborbiculato late membranaceo medio reticulato vix incrassato, stylo laterali.—Primo intuitu *P. violaceo* simillimus. Inflorescentia et flores eadem. Foliola basi obtusiora, subtus uti petioli tomento brevi rufescentia, et legumen omnino *P. Rohrii*, a quo differt pube et pedicellis elongatis.

Hab. Eastern Peru, on the banks of the Mayo, near Tarapoto, *Spruce*, n. 4471.

13. *P. ANCYLOCALYX* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 9-11 oblongis subobovatisve acuminatis nitidulis glabris, racemis simplicibus tomentellis, pedicellis brevissimis, ovario sessili tomentoso, legumine ex oblongo suborbiculari plano coriaceo lævi, stylo subterminali.—*Phellocarpus acutus*, *Benth. in Ann. Mus. Vind. ii. p. 106?* *Ancylocalyx acuminata*, *Tul. in Ann. Sc. Nat. Par. 2 ser. xx. p. 137, t. 2, et in Arch. Mus. Par. iv. p. 74*; *Amphymenium longifolium*, *Benth. Pl. Spr. exs.*—Florifer a *P. Rohrii* parum differt, foliolis numerosioribus angustioribus, floribus brevius pedicellatis, calyce magis incurvo laciniis summis acutioribus. Legumen valde diversum, undique coriaceum et crassiusculum v. margine exteriore anguste coriaceo-attenuatum, nunc vix longius quam latum, nunc plane oblongum.

Hab. North Brazil.

14. *P. VILLOSUS* (*Mart., Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis subquinis ovatis acuminatis supra puberulis subtus ramulisque villosulis, racemis abbreviatis, legumine orbiculato late membranaceo medio reticulato, stylo laterali.—*Amphymenium villosum*, *Mart., Benth. in Ann. Mus. Vind. ii. p. 95.*—Foliola $1\frac{1}{2}$ -2-pollicaria, non nitida. Flores non vidi. Racemi fructiferi perbreves. Legumen forma *P. Rohrii*, sed tenuiter villosulum.

Hab. Brazil, prov. Bahia.

15. *P. AMPHYMENIUM* (*DC. Prod. ii. p. 418*), foliolis 7 ovato-ellipticis acutis supra glabris subtus pubescentibus, racemis simplicibus albido-tomentosis, staminibus monadelphis, ovario sessili sericeo, legumine obovato-orbiculari albido-tomentoso late membranaceo medio tumido.—*Amphymenium pubescens*, *H. B. et K. Nov. Gen. et Sp. vi. p. 380.*

Hab. Mexico, between Zumpango and Mescala, *Humboldt* and *Bonpland*.

When I saw Humboldt's specimen at Paris in 1857, it appeared to me quite distinct from the *P. villosum*; but I have not had the opportunity of carefully comparing it.

Among the species enumerated by DeCandolle or subsequent writers under *Pterocarpus*, the *P. sapindoides*, DC., is an *Andira*; *P. Peltaria*, DC., is *Viborgia fusca*; the rest of his section *Ateleia* forms a new genus under that name among *Cæsalpinieæ*; *P. australis*, Endl., is a *Millettia*; *Amphymenium mediterraneum*, Mart., is a *Martia*.

X. PÆCILANTHE, Benth.

Calyx turbinato-campanulatus, basi acutus, semi-4-fidus. Carina alis brevior, petalis dorso apice connatis. Stamina monadelpha, vagina latere superiore fissa. Antheræ versatiles. Ovarium pluriovulatum. Legumen (lineare v. oblongum compressum indehiscens?) stylo terminali, seminibus pluribus dissitis.—Arbores Austro-Americanæ. Folia alterna, impari-pinata. Foliola alterna, stipellis nullis v. parvis ad foliolulum terminale. Racemi simplices, breves, axillares v. laterales. Bracteolæ parvæ. Pedicelli sparsi. Flores lutei v. albidus rubro v. violaceo mixti. Petala glabra.

1. *P. GRANDIFLORA* (Benth. in Mart. Fl. Bras. Leg. ined.), foliolis 5-7 ovatis oblongisve acuminatis basi rotundato-subcordatis subtus petiolisque pubescentibus, floribus majusculis.—*Pterocarpus falcatus*, Vell. Fl. Flum. vii. t. 93?—Foliola bipollicaria, v. terminale subtripollicare, petiolulata. Racemi bipollicares, laxi. Calyx 4 lin. longus. Ovarium glaberrimum.

Hab. Brazil, prov. Minas Geraes.

2. *P. SUBCORDATA* (Benth. l. c.), foliolis subseptenis late cordato-ovatis acuminatis glabris brevissime petiolulatis, floribus parvis.—Foliola 1-1½-pollicaria. Racemi 1-1½-pollicares, laxiores quam in *P. parviflora*. Flores 4 lin. longi, calyx 2-2½ lin. Ovarium ad suturas pilosulum.

Hab. Brazil, prov. Minas Geraes.

3. *P. PARVIFLORA* (Benth. l. c.), foliolis subquimis ovatis oblongisve acuminatis basi angustatis rotundatisve longiusque petiolulatis glabris, floribus parvis, pedicellis brevissimis.—Foliola 1-1½-pollicaria v. rarius bipollicaria, basi sæpius contracta. Racemi vix pollice longiores, a basi dense floridi. Flores 3-3½ lin. longi, lutei rubro mixti. Carina subrostrata. Ovarium pilosulum, ovulis 4.

Hab. On the Uruguay, where it becomes a tree of great beauty, called by the natives "*Lapotchillo*," or "the little *Lapotcho*," according to Tweedie.

XI. PLATYMISCIUM, Vog.

Calyx breviter 5-dentatus. Alæ liberæ. Carinæ petala dorso superne connata. Stamina monadelpha, vagina latere superiore fissa, v. vexillare rarius ad basin solutum. Antheræ versatiles. Ovarium stipitatum, uni-

ovulatum. Legumen stipitatum, oblongum, planum, indehiscens, submembranaceum, ad semen non incrassatum, suturis tenuibus v. vix nerviformi-incrassatis. Semen magnum reniforme, plano-compressum, radícula inflexa. Caulis lignosus arboreus v. frutescens. Folia opposita, v. 3-4-natim verticillata, glaberrima; foliolis oppositis paucijugis cum impari distante. Stipellæ nullæ. Racemi ad axillas foliorum novellorum solitarii et simplices terni v. trifidi, ad nodos vetustiores sæpe subfasciculati. Bracteæ et bracteolæ parvæ. Pedicelli sparsi. Flores lutei, glabri.

* *Foliola 3.*

1. *P. hebestachyum*. (Nov. Granada.)
2. *P. parviflorum*. (America centralis.)
3. *P. trifoliolatum*. (Mexico.)

** *Foliola 5. Racemi rhachis pubescens.*

4. *P. Trinitatis*. (Ins. Trinitatis.)
5. *P. stipulare*. (Peruvia orient.)

*** *Foliola 5, rarius 7-9. Racemus glaber. Calyx brevis basi obtusus.*

6. *P. gracile* (Racemi rhachis subpubescens). (Peruvia orient.)
7. *P. filipes*. (Cayenne.)
8. *P. præcox*. (Brasilia.)
9. *P. polystachyum* (Calyx basi subattenuatus). (Venezuela.)

**** *Foliola 5 v. 7. Racemus glaber. Calyx longior basi attenuatus.*

10. *P. Blancheti*. (Brasilia.)
11. *P. floribundum*. (Brasilia.)
- 12? *P. speciosum*. (Brasilia.)
13. *P. nitens*. (Brasilia.)

1. *P. HEBESTACHYUM*, sp. n., foliolis 3 ovatis basi truncatis subcordatisve, racemis cano-pubescentibus, pedicellis abbreviatis, vexillo alis brevioribus.—Ramuli et folia, ut in omni genere, glabra. Foliolum terminale 4 poll. longum, 3 poll. latum, lateralialia multo minora, omnia breviter et obtuse acuminata, coriacea, nitida. Racemi numerosi, longiores 3-pollicares. Pedicelli subfasciculati, $1\frac{1}{2}$ lin. longi. Bracteolæ ovatæ, 1 lin. Flores 4-5 lin. Calyx glabrescens, dentibus brevibus obtusis. Vexillum alis paullo brevius, orbiculatum. Stamen vexillare liberum v. ad medium cum cæteris connatum. Ovarium glabrum, longe stipitatum. Legumen non visum.

Hab. New Granada, near Tocaima, *Holton*, n. 993.

2. *P. PARVIFLORUM*, sp. n., foliolis 3 ovatis acuminatis basi acutis v. rotundatis, racemis puberulis, floribus parvis subsessilibus, vexillo alas superante.—Foliolum terminale 3-4 poll. longum, circa 2 poll. latum, lateralialia paullo minora, omnia tenuiter coriacea, nitidula, petiolulo 2 lin. longo. Racemi subfasciculati, bipollicares. Pedicelli etiam fructiferi vix $\frac{1}{2}$ lin. longi. Bracteolæ ovatæ, caducissimæ. Flores 4 lin.

longi. Calyx vix $1\frac{1}{2}$ lin., basi obtusus, dentibus brevibus obtusis. Vexillum suborbiculatum. Stamen vexillare liberum. Ovarii stipes quam in affinibus brevior. Legumen (vix maturum) 3 poll. longum, 1 poll. latum, stipite vix 2 lin. longo.

Hab. Central America, between Granada and Nicaragua, *Ærsted*.

3. *P. TRIFOLIOLATUM* (*Benth. in Herb. Trin. Coll. Dubl. MS.*), foliolis 3 ovato-ellipticis acuminatis basi acutis, racemis glaberrimis, floribus longiuscule pedicellatis.—Foliola quam in præcedente paullo angustiora, petiolulo duplo longiore. Racemi 3-5-pollicares, laxiflori. Pedicelli sparsi, 3 lin. longi. Flores 5-6 lin. longi. Calyx brevis, dentibus brevibus acutiusculis. Vexillum orbiculatum, alis subbrevis. Stamen vexillare liberum. Legumen junius tantum vidi $1\frac{1}{2}$ poll. longum, 4 lin. latum, stipite 4 lin. longo.

Hab. Mexico, between San Blas and Guadalupe, *Coulter*.

4. *P. TRINITATIS*, sp. n., foliolis subquinis ovalibus oblongisve vix acuminatis, racemis puberulis, pedicellis calycem subæquantibus, legumine latissimo utrinque rotundato.—Specimina fructifera tantum vidi. Stipulæ lineari-lanceolatæ, puberulæ, 3-4 lin. longæ. Foliola majora 3-4 poll. longa, $1\frac{1}{2}$ -2 poll. lata, coriacea, nitida. Racemi semipedales. Pedicelli fructiferi 2-3 lin. longi. E florum vestigiis, calyx $2\frac{1}{2}$ lin. longus videtur, puberulus, distincte dentatus; petala 6 lin. longa. Legumen $2\frac{1}{2}$ -3-poll. longum, fere $1\frac{1}{2}$ poll. latum, stipite 5-6 lin. longo.

Hab. Trinidad, *Purdie*.

I had formerly referred these fruiting specimens to the *P. polystachyum* of Venezuela, but the pubescent racemes and some other differences make it probable that more complete specimens of both species will show them to be quite distinct.

5. *P. STIPULARE*, sp. n., foliolis subquinis amplis ovalibus acuminatis, racemi rhachide pubescente, pedicellis calyce brevioribus, vexillo orbiculato alis subbrevis, legumine lato apice rotundato.—Arbor 40-pedalis, ramulis sæpe subinflatis cavis. Stipulæ lanceolatæ, subpollicares, glabræ. Foliola adulta sæpe 8 poll. longa et 4 poll. lata, per anthesin dimidio minora, coriacea et insigniter venosa. Racemi semipedales, fere a basi floribundi. Bractæ ovatæ, membranaceæ, caducæ, fere 3 lin. longæ. Bracteolæ circa $1\frac{1}{2}$ lin. Pedicelli per anthesin vix lineam longi. Flores 6 lin. Vexilli unguis calycem æquans. Stamina monadelpha. Legumen 3-pollicare, fere $1\frac{1}{2}$ poll. latum, stipite semipollicare.

Hab. Eastern Peru, along streams near Tarapoto, *Spruce*, n. 4292.

The hollow parts of the young branches are always full of ants.

6. *P. GRACILE*, sp. n., foliolis 5 ovatis vix acuminatis, racemis glabris v. minute puberulis, floribus parvis brevissime pedicellatis calyce brevi, vexillo obovato alas subsuperante.—Stipulæ anguste lanceolatæ, semipollicares. Foliola tenuiter coriacea, nitidula, terminale 3-pollicare,

lateralia minora, petiolulo 3-4 lin. longo. Racemi fasciculati, graciles, 4-5-pollicares. Flores 3 lin. longi, pedicello semilineari. Calyx vix lineam longus. Legumen bipollicare, stipite vix 2 lin. longo, medio 10 lin. latum, apice basique angustatum.

Hab. Eastern Peru, near Tarapoto, *Spruce*, n. 4228.

Readily distinguished by its small flowers from all except the *P. parviflorum*, which has only three leaflets.

7. *P. FILIPES*, sp. n., foliolis 5 ovatis acuminatis, stipulis lanceolatis, racemis glaberrimis, pedicellis calyce longioribus, bracteolis linearibus, calyce brevi, vexillo alis subbreuiore.—Stipulæ 2-3 lin. longæ. Foliola adulta non vidi, juniora longe acuminata. Racemi 2-3-pollicares, floribundi. Bracteæ et bracteolæ $\frac{1}{2}$ -1 lin. longi, angustiores quam in cæteris speciebus. Pedicelli filiformes, per anthesin 2-3 lin. longi. Flores nutantes, 5 lin., calyx vix $1\frac{1}{2}$ lin. Ovarium longe stipitatum.

Hab. Cayenne, *Martin*.

Although the specimens are not good, the long slender spikes and narrow bracts prevent my uniting this species with the *P. præcox*, to which it is the most nearly allied.

8. *P. PRÆCOX* (*Mart.*, *Benth.* in *Ann. Mus. Vind.*, ii. p. 104 et in *Mart. Fl. Bras. Leg.* ined.), foliolis 5-9 ovatis v. ovali-oblongis subacuminatis stipulis oblongis obtusis, racemis glabris, pedicellis calycem brevem subæquantibus, bracteolis parvis orbiculatis, vexillo orbiculato alas, subæquante.—Stipulæ 3 lin. longæ. Foliola sub 3-pollicaria. Flores conferti, 5 lin. longi, pedicello 1- $1\frac{1}{2}$ lin. Legumen non visum.

Hab. Brazil, prov. Rio Janeiro and Bahia (*Blanchet*, n. 2455 bis.?)

9. *P. POLYSTACHYUM* (*Benth.* in *Seem. Bot. Her.* p. 121. t. 21), foliolis subquinis ovatis acuminatis, stipulis orbiculatis obtusis, racemis glabris, pedicellis calycem subæquantibus, bracteolis ovatis, vexillo orbiculato alas subæquante.—Foliola 2-3-pollicaria. Racemi 3-4-pollicares. Flores 6 lin., pedicello 2-3-lineari. Calyx 2 lin. longus, basi vix attenuatus. Stamina monadelphæ. Legumen (in varietate Fendleriana) $2\frac{1}{2}$ poll. longum, $1\frac{1}{4}$ poll. latum, apice rotundatum, insigniter reticulatum, stipite 3 lin. longo superne dilatato.

Hab. Venezuela, near Santa Martha, *Bertero*; in Veraguas, *Seemann*. β , *Fendleri*, foliolis septenis.

Hab. Venezuela, *Fendler*, coll. 2. n. 1862.

10. *P. BLANCHETI* (*Benth.* in *Mart. Fl. Bras. Leg.* ined.), foliolis 7 oblongis acuminatis, racemis glabris, pedicellis calyce turbinato-campanulato subbreuioribus, bracteolis parvis, vexillo orbiculato alis subbreuiore.—Flores circa 6 lin. longi.

Hab. Brazil, prov. Bahia (*Blanchet*, n. 3452 & 3671).

Near *P. præcox* and *P. floribundum*, the calyx shaped as in the latter, but much smaller, the leaflets narrow, usually seven.

11. *P. FLORIBUNDUM* (*Vog. Linnæa*, xi. p. 199), foliolis 5-7 ovali-oblongis acuminatis, stipulis ovali-oblongis sublanceolatisve obtusis,

racemis glabris, pedicellis calyce basi attenuato subæquilongis, vexillo orbiculato alas vix æquante, legumine longe stipitato basi angustato. — *P. dichotomum*, Benth. in Ann. Mus. Vind. ii. p. 104 et (var. *latifolium*?) *P. latifolium*, Benth. l. c. — Foliola $2\frac{1}{2}$ –3-pollicaria v. maxima 4 poll. longa. Flores 6–7 lin. longi, pedicello $2-3\frac{1}{2}$ lin. rigidulo. Stamina monadelpha. Legumen 3-pollicare, basi in stipitem 6–9 lin. longum attenuatum.

Hab. Brazil, prov. Goyaz, Minas Geraes, and Rio Janeiro.

12. *P. SPECIOSUM* (*Vog. Linnæa*, xi. p. 200), foliolis 5 amplis ovali-oblongis acuminatis coriaceis, racemis glabris, legumine apice basique rotundato.

Hab. South Brazil.

Only seen in fruit, and perhaps a variety of *P. floribundum*, although in some respects resembling *P. nitens*.

13. *P. NITENS* (*Vog. Linnæa*, xi. p. 417), foliolis 5 oblongis acuminatis coriaceis nitidis, stipulis acutis, racemis glabris, pedicellis gracilibus calyce turbinato-campanulato sublongioribus, vexillo ovato alas æquante, legumine basi apiceque rotundato. — *P. luteum*, Benth. in Ann. Mus. Vind. ii. p. 104 excl. syn. Vell.; *Hymenolobium luteum*, Mart. Herb. Fl. Bras. n. 177. — Foliola 2–3-pollicaria. Flores 6 lin. longi, petalis quam in cæteris speciebus angustioribus. Legumen 4 poll. longum, $1\frac{1}{2}$ poll. latum, stipite semipollicari.

Hab. Brazil, near Rio Janeiro.

XII. HYMENOLOBIUM, *Benth.*

Calyx late campanulatus, truncatus, obscure sinuato-dentatus. Vexillum orbiculatum, basi nudum. Petala carinalia libera. Stamina monadelpha, vagina latere superiore fissa. Antheræ versatiles. Ovarium pluriovulatum. Legumen oblongum v. oblongo-lineare, membranaceum, indehiscens, venis ramosis percursum, quarum 2 majores prope basin marginibus subparallelæ. Species unica.

H. NITIDUM, *Benth. in Mart. Fl. Bras. Leg. ined.* Arbor subglabra.

Folia alterna, pinnata; foliola 5 rarius 7, opposita cum impari distante, 2–3-pollicaria, ovalia v. oblonga, coriacea, supra nitida. Stipulæ lineares, caduæ. Paniculæ in ramis aphyllis semipedales, laxæ. Flores majusculi, rosci. Calyx 4 lin. longus, crassiusculus.

Hab. Brazil, prov. Alagoas (*Gardner*, n. 1274); Venezuela, on the Rio Uaupès, near Panuré, *Spruce*, n. 2870.

The flowers are nearly those of *Andira Amazonum*, the fruit very different from that of an *Andira*.

A number of pods picked up by Mr. Spruce on the shores of the upper Rio Negro may be those of a second species of this genus, but the attached calyx is rather different, and the foliage and flowers are quite unknown.

XIII. OSTRYOCARPUS, *Hook. fil.*

Calyx campanulatus, truncatus, minute 5-dentatus. Vexillum ecallosum. Alæ a carina liberæ. Carinæ petala dorso connata. Stamen vexillare liberum, cætera connata. Ovarium sessile, pluriovulatum. Legumen orbiculatum, plano-compressum, coriaceum, indehiscens, exalatum. Semen transversum, late oblongum.

Species unica.

O. RIPARIUS, *Hook. fil. Fl. Nig.* p. 316. Frutex ramis sarmentosis foliisque glaberrimis. Folia alterna, pinnata, exstipellata. Foliola 5, opposita cum impari distante, 4–8 poll. longa, 2–3 poll. lata, oblonga, utrinque rotundata, apice abrupte et breviter acuminata, coriacea, nitida. Paniculæ racemiformes, 4–8-pollicares v. interdum longiores, pube subsericea ferrugineæ. Flores secus ramulos breves (fasciculorum rhaches elongati) sparsi, subsessiles, 4 lin. longi, albido-flavicantes. Petala glabra. Ovarium pubescens, ovulis 3. Legumen 2 poll. diametro, glaberrimum.

Hab. Sierra Leone, *Don, Vogel*; Senegambia, on the Rio Nunes, *Heudelot*, n. 817; Fernando Po, *Vogel*.

The inflorescence and many of the characters are those of some *Lonchocarp*i, but the tenth stamen is free, the wings do not adhere to the carina, and the pod is different.

XIV. LONCHOCARPUS, *H. B. et K.*

Sphinctolobium, *Vog.*; *Neuroscapha*, *Tul.*; *Philenoptera*, *Fenzl.*

Calyx truncatus v. brevissime 4–5-dentatus. Alæ supra unguem carinæ leviter cohærentes. Carinæ petala dorso superne leviter cohærentia. Stamen vexillare ima basi liberum, dein cum cæteris in tubum completum connatum. Antheræ versatiles. Ovarium bi-pluri-ovulatum. Legumen planum, oblongum v. elongatum, membranaceum coriaceum v. sublignosum, indehiscens, stylo terminali, suturis non alatis, vexillari tamen interdum lateraliter dilatata v. incrassata. Semina, si plura, dissita, compressa. Radicula inflexa. —Caulis lignosus, arboreus v. sæpius alte scandens. Folia alterna, foliolis oppositis cum impari distante, stipellis raris v. nullis. Racemi simplices v. rarius paniculati. Pedicelli fasciculati v. gemini v. biflori, v. fasciculi rhachi elongato racemoso-sparsi. Flores violacei purpurei v. albi nec lutei, petalis sericeis v. glabris. Calyx peracta anthesi sæpius cyathiformis.

§ 1. *NEUROSCAPHI*. Flores secus rhachin gemini. Foliola supra glabra. Vexillum basi bicallosum v. biappendiculatum, extus sæpe sericeum. Leguminis sutura vexillaris præsertim ad semina incrassato-dilatata.

1. *L. guatemalensis*. (America centralis.)
2. *L. sericeus*. (America trop., Africa occid.)
3. *L. neuroscapha*. (Brasilia.)
4. *L. parviflorus*. (America centralis.)

§ 2. *DENSIFLORI*. Flores secus rhachin gemini. Foliola supra glabra.

Flores in racemis numerosi, approximati, sæpius parvi. Vexillum tenuiter sericeum v. glabrum, basi appendiculatum v. callosum. Legumen (ubi notum) planum, tenue v. subcoriaceum, suturis nerviformibus v. acutatis nec incrassato-dilatatis.

* *Macrophylli.*

5. *L. unifoliolatus.* (America centr.)
6. *L. latifolius.* (America trop.)
7. *L. macrocarpus.* (America trop.)
8. *L. spiniflorus.* (Brasilia sept.)

** *Acuminati.*

9. *L. hondurensis.* (America centr.)
10. *L. atropurpureus.* (America centr.)
11. *L. lanceolatus.* (America centr.)
12. *L. rubiginosus.* (Guiana.)
13. *L. nitidus.* (Brasilia.)

*** *Obtusifolii.*

14. *L. rugosus.* (America centr.)
15. *L. obovatus.* (Mexico.)

§ 3. *ERIOPHYLLI.* Flores secus rhachin gemini. Foliola utrinque molli-ter tomentosa v. villosa (in *L. Fendleri* supra glabra). Vexillum sericeum. Cætera *Densiflororum.*

16. *L. phaseolifolius.* (America centr.)
17. *L. velutinus.* (America centr.)
18. *L. Fendleri.* (Venezuela.)
19. *L. eriophyllus.* (Mexico.)

§ 4. *LAXIFLORI.* Flores secus rhachin gemini. Racemi foliis breviores, dissitiflori. Vexillum glabrum v. tenuissime subsericeum, basi in unguem angustatum et omnino ecallosum. Legumen (ubi notum) planum, subcoriaceum, suturis nec carinatis nec dilatatis.

20. *L. filipes.* (Brasilia.)
21. *L. virgilioides.* (Brasilia.)
22. *L. denudatus.* (Brasilia.)
23. *L. campestris.* (Brasilia.)
24. *L. mollis.* (Brasilia.)
25. *L. obtusus.* (Brasilia.)

§ 5. *PUNCTATI.* Flores secus rhachin gemini, v. pedicello communi irregulariter elongato plurifloro subpaniculati. Folia glabra, foliolis pellucido-punctatis (punctis oblongis rotundisque intermixtis). Vexillum glabrum v. tenuissime sericeum. Legumen (ubi notum) subcoriaceum, suturis tenuiter utrinque marginatis nec alatis.

26. *L. violaceus.* (America trop.)
27. *L. confertiflorus.* (Peruvia orient.)

28. *L. araripensis*. (Brasilia.)

29. *L. subglaucescens*. (Brasilia.)

§ 6. PANICULATI. Flores irregulariter paniculati. Racemorum ramuli seu pedunculi proprii sæpius elongati pluriflori. Folia impunctata. Vexillum glabrum v. tenuissime sericeum. Legumen (ubi notum) tenue, submembranaceum, suturis nec dilatatis nec alatis.

30. *L. præcox*. (Brasilia.)

31. *L. cyanescens*. (Africa tropica occid.)

32. *L. laxiflorus*. (Africa tropica.)

33. *L. philenoptera*. (Africa orient.)

34. *L.?* *macrostachyus*. (Africa tropica occid.)

§ 7. FASCICULATI. Flores in racemo simplici v. vix subramoso secus rhachin fasciculati, fasciculorum rhachi proprio nodiformi v. rarius ad basin racemi (paniculæ racemiformis) parum elongato. Legumen (ubi notum) planum, membranaceum v. coriaceum, suturis non alatis nervifor- mibus v. vexillari leviter dilatata.

* *Carina vix arcuata, ovulis 2.*

35. *L. rariflorus*. (Brasilia sept.)

36. *L. floribundus*. (Brasilia sept., Guiana.)

37. *L. nitidulus*. (Brasilia sept., Guiana.)

38. *L. negrensis*. (Brasilia sept.)

** *Carina vix arcuata, ovulis circa 6.*

39. *L. Barteri*. (Africa occid. tropica.)

40. *L. rufescens*. (Guiana.)

*** *Carina valde arcuata, ovulis 6-8 v. pluribus.*

41. *L. Spruceanus*. (Brasilia bor.)

42. *L. densiflorus*. (Guiana, Venezuela.)

43. *L. glabrescens*. (Brasilia sept.)

44. *L. costatus*. (Brasilia.)

**** *Vexillo angusto, petalis omnibus rectiusculis, ovulis 2.*

45. *L. fasciculatus*. (Africa occid.)

46. *L. brachypterus*. (Africa occid.)

§ 1. NEUROSCAPHI.

1. *L. GUATEMALENSIS*, foliolis 5-7 ovatis oblongisve novellis subsericeis demum glabratiss, racemis cano-sericeis, pedicellis plerisque geminis, bracteolis minimis a calyce remotis, vexillo cano-sericeo, legumine elongato glabrescente sutura vexillari ad semina leviter dilatato.—Foliola adulta 2-3-pollicaria, brevissime acuminata v. obtusata, longiuscule petiolulata, chartacea, nitidula. Racemi ad ramos annotinos solitarii v. fasciculati, 3-5-pollicares, tomento minuto sericeo potius canescentes quam rufescentes. Pedicelli 1-2 lin. longi, sessiles v. pedicello communi brevissimo fulti. Calyx tenuissime cano-sericeus

basi supra bracteolas minutas in stipitem attenuatus. Flores cæterum forma et magnitudine iis *L. sericei* similes. Legumen immaturum tantum et monospermum vidi, jam 3 poll. longum, ad semen 10 lin. latum, infra semen longe angustatum, sutura vexillari ad semen concaviuscula $1\frac{1}{2}$ lin. lata.

Hab. Guatemala, *Friedrichsthal*; South Mexico, *Jurgensen*, n. 159.

In flower the species resembles on the one hand the *L. sericeus*, from which it may be known by the small distant bracteoles and whitish aspect of the inflorescence, and on the other hand the *Piscidia erythrina*, but the inflorescence is less branched and not so silky.

β, Jurgenseni, foliolis 7–11, pedicellis plerisque bifloris.

Hab. South Mexico, *Jurgensen*, n. 247.

γ? Fendleri, pedicellis bifloris, floribus minoribus, calycis dentibus evidenter rufescentibus.

Hab. Chagres, *Fendler*, n. 94.

2. *L. SERICEUS* (*H. B. et K. Nov. Gen. et Sp.* vi. p. 383 in adnot.), foliolis 7–11 ovalibus oblongisve breviter acuminatis subtus tomentosis puberulisve, pedicellis geminis v. breviter bifloris, bracteolis calyci approximatis, vexillo argenteo-sericeo basi transverse calloso-appendiculato, legumine coriaceo-sublignoso, sutura vexillari ad semina parum dilatata.—*Robinia sericea*, Poir.; *Lonchocarpus sericeus*, et *L. pyxidarius*, DC. Prod. ii. p. 260; *L. tomentosus*, Tul. Arch. Mus. Par. iv. p. 82.—Arbor. Foliola vulgo 2–3-pollicaria. Flores 7–8 lin. longi, rosei v. violacei, petalis insigniter sericeis.

Hab. Widely spread in Tropical America; the normal form, with the leaflets more or less rusty-pubescent underneath, is found chiefly on the continent; in various parts of Brazil (*Gardner*, n. 1275), in Guiana and New Granada, and in Western Tropical Africa.

β, glabrescens, foliolis subtus glabris v. vix minute puberulis.—*L. Domingensis* et *L. formosianus*, DC. Prod. ii. p. 260; *L. macrophyllus*, *H. B. et K. Nov. Gen. et Sp.* vi. p. 383.

Hab. In Tropical America; Cayenne, *Martin*; frequent in Venezuela and New Granada (*Holton*, n. 975 & 990, *Schlium*, n. 74, &c.), in St. Domingo and Jamaica, and in Western Tropical Africa.

I had at one time thought that the glabrous foliage was sufficient to distinguish this form from the last, especially as the only pod I then knew had assumed a different shape, owing to more of the ovules having come to maturity; but the copious specimens we have now received from various collectors in Western Tropical Africa show that all belong to one species. Some are precisely similar to Purdie's glabrous Jamaican ones, others as closely resemble the Brazilian ones described by Tulasne as *L. tomentosus*, and they all pass into each other very gradually by numerous intermediates. The leaves are very variable in size; when very luxuriant, some of the leaflets are five or even six inches long, though the ordinary size on the flowering branches is but two or three inches.

γ?, bracteolis parvis.

Hab. In Tropical America, Surinam, *Hostmann*, n. 234; Cuba, *Linden*, n. 2138.

Not having seen the pod of this plant, I have some doubts of its specific identity, for the foliage, although closely resembling that of the moderately pubescent forms of *L. sericeus*, is also very nearly that of *L. macrocarpus*, of which I have not seen the flowers. The bracteoles are very small and deciduous, whereas in *L. sericeus* they are usually orbicular, and half a line or more in diameter.

3. *L. NEUROSCAPHA*, foliolis 7-11 ovatis oblongisve glabris v. subtus petiolisque rufo-pubescentibus, racemis dense rufo-tomentosis, floribus parvis plerisque geminis, vexillo sericeo, legumine coriaceo glabrescente sutura vexillari latissime concavo-dilatato.—*Neuroscapha Guillemianiana*, Tul. Ann. Sc. Nat. Par. sér. 2. xx p. 137, et Arch. Mus. Par. iv. p. 76. t. 6; *Neuroscapha pubigera* et *N. Martiana*, Tul. Ann. Sc. Nat. Par. sér. 2. xx. p. 138, et Arch. Mus. Par. iv. pp. 78, 79.—Folia fere *L. sericei*. Flores 4-5 lin. longi. Leguminis maturi dilatatio suturæ vexillaris usque ad 5 lin. lata.

Hab. Brazil, abundant about Rio Janeiro, extending to Minas Geraes and Bahia (*Blanchet*, 3254, 3554; *Mart. Herb. Bras.* 1159).

The peculiar dilatation of the upper margin of the pod, on which *Tulasne* founded his generic character, common to all this group, is more marked in this than in any other species, and may be traced in a slighter degree in several others belonging to different groups of the genus.

4. *L. PARVIFLORUS*, sp. n., foliolis 5-7 ovatis oblongisve acuminatis cano-sericeis v. demum glabratiss, pedicellis abbreviatis subgeminis, floribus parvis sericeis, legumine glabro tenuiter coriaceo sutura vexillari ad semina dilatato.—Frutex videtur, ramis demum glabratiss lenticellis albis verrucosis. Partes novelli pube sericea canescentes v. rufescentes. Folia adulta nunc glaberrima, nunc tenuiter cano-sericea. Foliola fere semper 5, pallide virentia, 1-2-pollicaria, plerique longiuscule acuminata v. acutata, membranacea v. vix coriacea. Racemi conferti, pollicares, densiflori. Pedicelli $\frac{1}{2}$ lin. longi, pedicellis propriis brevissimis. Bracteolæ ovatæ, subpersistentes. Flores 3 lin. longi. Petala sericea. Vexillum auriculis inflexis in unguem decurrentibus appendiculatum. Ovula 6-8. Legumen 1-2-spermum, 1-2 $\frac{1}{2}$ -pollicare, glabratum, tenuius quam in præcedentibus speciebus, ad semen 6-7 lin. latum, sutura vexillari insigniter concavo-dilatata.

Hab. Central America, South Mexico, *Jurgensen*, n. 219; in the Vulkan El Viejo, and in the province of Segovia, *Ørsted*; in "New Spain," *Herb. Pavon*.

In the size of the flowers, inflorescence, and foliage, it is near *L. atropurpureus*, but readily known by its more silky petals and very different pod.

§ 2. DENSIFLORI.

[As the species of this group differ from the last almost entirely in the pod alone, the position of those which have not yet been seen in fruit is in some cases doubtful.]

5. *L. UNIFOLIOLATUS*, sp. n., foliolis solitariis amplis ovatis glabris nitidulis, pedicellis plerisque bifloris, calyce vexilloque tenuiter sericeis. —Totus floribus exceptis glaberrimus. Foliola in specimine omnia ad apicem petioli pollicaris solitaria, ovata v. suboblunga, acuminata, 3-5 poll. longa, 2-2½ poll. lata, basi rotundata, juniora membranacea, adulta subcoriacea et nitidula, petiolulo 2-3 lin. longo. Racemi graciles, 5-6-pollicares. Flores inter minores (4-5 lin. longi). Pedicelli breves. Bracteolæ parvæ, angustæ, caducæ. Calyx 1 lin. truncatus. Vexillum basi leviter calloso-plicatum. Ovarium sericeo-pilosum. Legumen ignotum.

Hab. South Mexico, *Jurgensen*, n. 717.

6. *L. LATIFOLIUS* (*H. B. et K. Nov. Gen. et Sp. Pl.* vi. p. 383), glaber v. tenuissime rufo-sericeus, foliolis 5-9 amplis ovali-oblongis acuminatis tenuibus glabris v. subtus pube minuta conspersis, racemis elongatis, pedicellis plerisque bifloris calycem æquantibus, bracteolis minutis, vexillo tenuiter sericeo, ovulis 2, legumine oblongo v. lato-lineari plano tenui demum glabro suturis acutis nec alatis nec dilatatis. —*Amerimnum latifolium*, Willd. Spec. Pl. iii. p. 909; *Dalbergia pentaphylla* et *D. heptaphylla*? Poir. Dict. Suppl. ii. p. 445, 446; *Lonchocarpus latifolius*, *L. pentaphyllus*, *L. heptaphyllus*? et *L. oxycarpus*, DC. Prod. ii. p. 260, 261. —Arbor 30-40-pedalis, ramis debilibus. Petioli communes 6-10-pollicares. Foliola maxima 6-8 poll. longa, 2-3 poll. lata, sæpius tamen subdimidio minora, minus coriacea quam in præcedentibus et læte virentia, subtus elevato-pennivenia, costa venisque primariis sæpius tenuissime rufo-sericeis. Pedunculi axillares, solitarii v. gemini, 3-5-pollicares, jam infra medium floridi. Flores 4-5 lin. longi, sæpius pallidi (v. albi?) rarius atro-violacei. Vexillum basi late truncatum, vix callosum. Ovarium tenuiter sericeum, ovulis 2 remotis. Legumen 2-3 poll. longum, 8-10 lin. latum, 1-2-spermum, inter semina non vel vix constrictum.

Hab. Common in the West Indies (Cuba, *Wright*, n. 141, 142; Martinique, *Sieber*, 176), and adjoining parts of South America, in Surinam, British Guiana, Portorico, Veraguas, and Central America to Nicaragua, *Ærsted*; and Teapa, *Linden*, n. 732; the latter a variety with dark-coloured flowers. I have not seen it from Brasil, Ecuador, or Peru.

The species is generally known by its somewhat large leaflets, long rather than broad, notwithstanding its name, of a thinner texture and a lighter colour than most species, with oblique prominent veins, and rather short racemes of small flowers on comparatively long pedicels. The fruit is often like that of a *Dalbergia*.

7. *L. MACROCARPUS*, sp. n., foliolis 9–17 obovali-oblongis breviter acuminatis subtus molliter tomentoso-puberulis, pedicellis geminis biflorisve, legumine oblongo amplo apice basique angustato subcoriaceo tenuiter tomentoso, sutura vexillari acuta nec alata nec dilatata.—Arbor. Folia 4-pollicaria fere *L. latifolii* sed subtus evidentius tomentosa et rigidiora, iis *L. sericei* approximantia. Legumen (adhuc immaturum) monospermum 3–4 poll. longum et $1-1\frac{1}{2}$ poll. latum, dispermum jam 5–6 poll. longum, undique tomento brevissimo molli subsericeo rufescens.

Hab. New Spain, *Herb. Pavon*; Venezuela, *Fendler*, n. 1861; Santa Cruz in Bolivia, *D'Orbigny*, n. 578.

Not having seen the flowers, I do not feel certain as to the affinities of this species. The foliage is between that of *L. latifolius* and *L. sericeus*, the fruit like that of *L. latifolius*, but twice as large.

β, sericophylla, foliolis 11–17 oblongis subtus magis tomentosis v. interdum molliter sericeis.

Hab. On the banks of the Huallaga in the province of Maynas, Eastern Peru, *Spruce*, n. 4597.

This variety comes still nearer the *L. sericeus* in foliage, although so different in fruit. I have not seen the flowers.

8. *L. SPICIFLORUS*, *Mart.*, foliolis 7–9 amplis obovali-oblongis obtusissimis v. brevissime acuminatis glabris v. subtus tenuissime ferrugineo-puberulis, racemis folio brevioribus dense multifloris, pedicellis subgeminis brevissimis, vexillo glabriusculo, legumine plano tenui suturis acutis non dilatatis.—Foliola 4–6-pollicaria. Racemi 3–4-pollicares, floribus undique confertis fere sessilibus vix 5 lin. longis. Legumen (nondum maturum) fere *L. latifolii*.

Hab. North Brazil.

9. *L. HONDURENSIS*, sp. n., glaber, foliolis 5 ovali-oblongis acuminatis glabris subcoriaceis, racemis multifloris, pedicellis plerisque bifloris brevissimis, vexillo tenuiter sericeo, ovulis circa 6.—A *L. latifolio* differt foliolis minoribus subcoriaceis venis primariis subtus vix prominulis et pedicellis cum pedicello communi calyce brevioribus. Foliola 2–3-pollicaria v. terminale rarius longius. Racemi densiflori, 4–6-pollicares. Flores atro-violacei, magnitudine *L. latifolii*. Vexilli auriculæ inflexo-appendiculatæ. Legumen ignotum.

Hab. Honduras, *R. Temple in Herb. Banks*; Tabasco (Yucatan), *E. P. Johnson*, n. 31.

10. *L. ATROPURPUREUS*, sp. n., foliolis 5–7 (rarius 9) parvis ovatis oblongisve subacuminatis glabris v. subtus vix pilosulis, racemis confertifloris folio subbrevioribus, pedicellis brevibus plerisque bifloris, vexillo glabro, ovulis circa 6, legumine stipitato glabro tenui suturis non dilatatis.—*Cytisus atropurpureus* et *C. parviflorus*, *Herb. Pavon*, in *Herb. Boiss.*—Arbor parva, primo intuitu *L. parvifloro* similis, sed glabritie, vexillo glabro, et legumine facile distincta. Rami ramo-

- sissimi. Petioli tenues. Foliola 1-1½ rarius 2-pollicaria, concoloria, glabra v. rarius subtus secus costam pilosula. Racemi bipollicares. Pedicelli infra ramificationem vix lineam longi, pedicellis propriis brevioribus. Bracteæ et bracteolæ minutæ. Flores 4 lin. longi. Vexillum basi supra unguem transverse bicallosum. Ovarium sericeo-pubescentibus.
- Hab.* New Spain, *Herb. Pavon*; Venezuela; Hills near Santa Martha, *Purdie*; Maracaybo, *Plée*; Andes of Truxillo and Merida, *Linden*, n. 277.
11. *L. LANCEOLATUS*, sp. n., foliolis 9-13 parvis ovatis oblongisve subacuminatis supra pilosulis subtus petiolis racemisque molliter pubescentibus, racemis confertifloris folio brevioribus, pedicellis brevibus plerisque bifloris, vexillo tenuissime sericeo, ovulis circa 6, legumine stipitate elongato tenui.—*Cytisus lanceolatus*, *Herb. Pavon*.—Species *L. atropurpureo* valde affinis, differt pube et foliolis numerosioribus minoribus raro pollicem longis. Inflorescentia et flores eadem. Calyx et vexillum tenuiter rufo-sericea. Legumen junius simillimum nisi evidentius sericeum; perfectum non vidi.
- Hab.* N. Spain, *Herb. Pavon in Herb. Boiss*.
12. *L. RUBIGINOSUS*, sp. n., foliolis 5-7 parvis obovatis oblongisve breviter et obtuse acuminatis basi cuneatis supra glabris nitidulis subtus tenuissime ferrugineo-puberulis, racemis confertifloris folio brevioribus, pedicellis plerisque bifloris (ovulis pluribus), legumine tenui anguste lineari plano glabro.—*Robinia rubiginosa*, *Herb. Banks*.—Ramuli tenues, novelli velutino-tomentelli, demum glabrati. Petioli communes tenues, 1½-2½-pollicares. Folia maxima 1½-pollicaria, pleraque breviora, subcoriacea, subtus elevato-pennivenia. Racemi graciles. Flores *L. parviflori*. Legumen usque ad 3 poll. longum, vix 3 lin. latum.
- Hab.* Guiana, *Aublet (Herb. Banks)*. With little to distinguish it in foliage and flowers from the *L. parviflorus*; this species has a totally different fruit.
13. *L. NITIDUS*, foliolis 7-9 parvis oblongis acuminatis glabris impunctatis, racemis laxè multifloris folio subbrevioribus, pedicellis bifloris, vexillo tenuissime subsericeo, ovulis circa 6.—*Sphinctolobium nitidum*, *Vog. Linnæa*, xi, p. 419.
- Hab.* South Brazil. Differs from *L. atropurpureus* in its narrower leaflets, looser racemes, and rather larger and paler flowers. The pod is unknown.
14. *L. RUGOSUS*, sp. n., foliolis 9-13 oblongis obtusissimis supra glabris subtus adpresse ferrugineo-pubescentibus, racemis folia subæquantibus fere a basi floribundis, pedicellis geminis, vexillo sericeo, legumine sericeo-villoso tenui plano suturis nudis.—Ramuli et petioli ferrugineo-villosi. Petioli communes 3-4-pollicares. Foliola iis *L. sericei* sub-similia, nisi multo minora et utrinque obtusa v. retusa, pleraque 1½-pollicaria, supra nitidula et venis impressis subrugosa, subtus elevato-

pennivenia, undique præsertim ad venas rufo-sericea. Racemi ferrugineo-pubescentes. Pedicelli 1-1½ lin. longi. Flores parvi. Legumen brevissime stipitatum (immaturum) 2 poll. longum, circa 7 lin. latum, pilis mollibus subsericeis rufescentibus vestitum.

Hab. Campeachy, *Houstoun*, in *Herb. Banks.*

15. *L. OBOVATUS*, sp. n., foliolis 5-9 parvis obovatis obtusissimis emarginatisve parce pilosulis glabratissive, racemis folio longioribus pedunculatis densifloris, pedicellis geminis subbiflorisve, vexillo tenuiter sericeo, ovulis circa 5.—Petioli communes tenues, 1½ v. rarius 2 poll. longi. Foliola 8-9 lin. v. rarius 1 poll. longa, basi in petiolulum longum sæpe subtortum angustata, rigidule membranacea, reticulata, utrinque viridia v. subtus pallida, pilis brevibus conspersa. Racemi pars florifera bipollicaris v. longior, pedunculo pollicari fulta, rhachi pedicellis calycibusque tenuiter tomentoso-sericeis. Flores conferti, penduli, semipollicares (rosei?). Vexillum supra unguem tenuiter biplicato-callosum. Legumen ignotum.

Hab. Mexico; Chilla, in the district of Puebla, *Andrieux*, n. 440.

§ 3. ERIOPHYLLI.

16. *L. PHASEOLIFOLIUS*, sp. n., foliolis 3 ovato-orbiculatis subrhombeisve subtus v. utrinque molliter velutino-tomentosis, floribus plerisque geminis subsessilibus, bracteolis orbiculatis, vexillo sericeo, ovulis 2.—Folia et inflorescentiæ pube molli subfulvescente dense vestita, pagina superior foliolorum demum nonnunquam fere denudata. Foliolum terminale 3½-4 poll. longum, 2½-3 poll. latum, lateralia minora, omnia obtusa v. breviter acuminata, basi obtusissima, subtus elevato-pennivenia et reticulato-venulosa. Racemi axillares, bipollicares. Flores circa 4 lin. longi. Bracteolæ orbiculatæ, diu persistentes. Vexillum argenteo-sericeum, basi leviter plicato-inflexum. Ovarium pilosulum.

Hab. Mexico, near Tehuantepec, *Andrieux*, n. 462.

17. *L. VELUTINUS* (*Benth. in Seem. Bot. Her. p. 111*), foliolis 5-9 ovalibus oblongisve utrinque petiolis paniculaque molliter tomentosis, pedicellis plerisque bifloris, bracteolis minutis caducissimis, vexillo tomentoso, ovulis 2-4.—Arbor. Foliola 1½-3-pollicaria, nunc breviter acuminata et basi angustata, nunc utrinque rotundata et obtusissima, v. apice retusa, tomento molli subvelutino flavicantia, subtus elevato-pennivenia et reticulato-venulosa. Racemi 3-4-pollicares, superiores in paniculam dispositi. Pedicelli proprii ½-1 lin. longi, pedicello communi 1 lin. longo fulti. Flores 4-5 lin. longi. Vexillum dense sericeo-tomentosum, basi ad margines leviter callosum. Ovarium post anthesin paullo accretum dense tomentosum. Legumen perfectum non vidi.

Hab. Central America: Culebra, *Hinds*; near San Carlos, prov. Panama, *Seemann*; Nicaragua, *Ørsted*.

18. *F. FENDLERI*, sp. n., foliolis 7-9 oblongis subobovatisve obtusis demum coriaceis, supra glabris nitidis, subtus molliter tomentosis, racemis infrafoliaceis, pedicellis plerisque geminis, vexillo tenuiter sericeo, ovulis circa 6, legumine elongato plano tenui tomentello, sutura vexillari leviter dilatata.—Ramuli petioli et pagina inferior foliolorum tomento denso molli canescente v. rufescente obtekti. Foliola subbipollicaria in speciminibus floridis membranacea, supra ad venas primarias tenuissime tomentella, subtus dense et mollissime tomentoso-sublanata; in fructiferis coriacea, supra glaberrima nitida et subbullata, subtus dense subrufescenti-tomentosa. Racemi 4-pollicares. Pedicelli 2 lin., flores 7 lin. longi. Vexillum basi nec auriculato-plicatum, nec transverse callosum, sed callis 2 tenuibus longitudinalibus in medio ungue decurrentibus. Legumen stipitatum, monospermum 2 poll., 3-spermum fere 4 poll. longum, 9 lin. latum.

Hab. Venezuela, near the colony of Tovar, *Fendler*, 1st coll. n. 2219 (*fl.*), and 2nd coll. n. 1863 (*fr.*).

The species might be equally well placed in the preceding group near *L. rugosus*, but it has a much more downy-woolly appearance. The flowers are nearly twice the size.

19. *L. ERIOPHYLLUS*, sp. n., foliolis 11-19 (parvis) oblongis utrinque petiolo racemisque mollissime tomentosis, pedicellis geminis biflorisve, bracteolis minutis caducis, vexillo tomentoso.—A *L. velutino* distinguitur imprimis foliolis parvis numerosis et floribus duplo majoribus. Pubes mollissima, canescens v. fulvescens. Foliola vix pollicaria, 3-4 lin. lata, obtusa v. acutiuscula. Pedicelli 2 lin. longi, sessiles v. pedicello communi brevi fulti. Calyx molliter tomentosus. Flores 9-10 lin. longi. Vexillum supra unguem brevem leviter calloso-plicatum. Ovula plurima (6-8?) minima.

Hab. Mexico, near Chilla in the district of Puebla, *Andrieux*, n. 439.

§ 4. LAXIFLORI.

20. *L. FILIPES* (*Benth. in Mart. Fl. Bras. Leg. ined.*), glaber, foliolis 3 ovatis oblongisve acuminatis, racemis gracilibus dissitifloris, pedicellis subgeminis filiformibus, vexillo glaberrimo, legumine oblongo subcoriaceo lævi, suturis nudis.—Foliola 2-3-pollicaria. Flores semipollicares.

Hab. Brazil, near Rio Janeiro.

21. *L. VIRGILIOIDES* (*Benth. in Mart. Fl. Bras. Leg. ined.*), glaber, foliolis 5 ovatis oblongisve impunctatis, racemis infrafoliaceis brevibus laxifloris, pedicellis subgeminis, vexillo glaberrimo ecalloso, legumine elongato subcoriaceo, suturis nudis.—*Sphinctolobium virgilioides*, Vog. Linnæa, xi. p. 418.—Foliola $1\frac{1}{2}$ -2-pollicaria. Flores circa 7 lin. longi.

Hab. Brazil, near Rio Janeiro; also prov. Bahia (*Blanchet*, n. 3421).

When in flower only it is scarcely to be distinguished from the *Müllera*

moniliformis, but by the total absence of any pellucid dots on the leaves.

22. *L. DENUDATUS* (*Benth. in Mart. Fl. Bras. Leg. ined.*), petiolis racemisque puberulis, foliolis 5-7 ovatis oblongisve glabris v. subtus minute puberulis, racemis ad ramos aphyllis brevibus laxe paucifloris, pedicellis subgeminis, vexillo tenuissime subsericeo ecalloso.—Foliola $1\frac{1}{2}$ - $2\frac{1}{2}$ poll. longa. Flores circa 7 lin. Legumen ignotum.

Hab. North Brazil, near Santarem, *Spruce*.

23. *L. CAMPESTRIS* (*Mart. Fl. Bras. Leg. ined.*), petiolis racemisque rufo-tomentosis, foliolis 7-9 ovali-oblongis subacuminatis pallidis glabriusculis, racemis ad ramos aphyllis brevibus laxifloris, pedicellis subgeminis, vexillo glabriusculo, ovulis 2-3, legumine tenui, suturis nerviformibus.—Foliola pleraque $1-1\frac{1}{2}$ -pollicaria. Flores circa 4 lin. longi.

Hab. Brazil, Minas Geraes and Goyaz.

24. *L. MOLLIS* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 7-9 ovatis oblongisve subacuminatis supra puberulis, subtus ramulis petiolisque molliter pubescentibus, racemis brevibus axillaribus v. infrafoliaceis laxe paucifloris, pedicellis subgeminis, vexillo glabriusculo, ovulis 2-3.—A *L. campestri* differt imprimis pube.

Hab. South Brazil.

25. *L. OBTUSUS* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 5-9 obovali-oblongis obtusissimis supra glabris nitidulis subtus petiolis racemisque laxe rufo-pubescentibus, racemis subfasciculatis lateralibus brevibus laxifloris, vexillo glabriusculo, ovulis circa 8.—Flores quam in *L. campestri* paullo majores, folia similia nisi obtusiora, et ab illa specie ovulorum numero constanter differre videtur.

Hab. Brazil, prov. Bahia (*Blanchet*, n. 2830).

§ 5. PUNCTATI.

26. *L. VIOLACEUS* (*H. B. et K. Nov. Gen. et Sp. vi. p. 383, in adnot.*), glaber, foliolis 5-13 ovatis acuminatis pellucido-punctatis, pedicellis bifloris, vexillo glabro, legumine coriaceo, suturis nudis v. vexillari angustissime marginata.—*Robinia violacea*, Jacq. Pl. Amer. p. 210; *Robinia latifolia*, Mill. Dict. non Poir.; *Robinia sepium*, Sw. Fl. Ind. Occid. p. 1258 non Jacq. et ideo *Lonchocarpus Swartzii*, DC. Prod. ii. p. 160; *Lonchocarpus punctatus*, H. B. et K. Nov. Gen. et Sp. Amer. vi. p. 383.—Foliola 2-3-pollicaria. Racemi laxi, pedicellis infra bifurcationem 2-3 lin. longis, pedicellis propriis vix brevioribus. Bracteæ et bracteolæ minutæ, cito deciduæ. Flores majusculi, violacei, suaveolentes, glabri. Calyx 3 lin. longus. Vexillum circa 7 lin. longum, basi cordatum et auriculis inflexis appendiculatum. Ovarium 3-4-ovulatum. Legumen monospermum 2-pollicare, v. dispermum fere

4 poll. longum, ad semina 1 poll. latum, inter semina, ad apicem et basi valde contractum.

Hab. Frequent in the West Indies, chiefly near the sea; also in Venezuela near Cumana, *Humboldt & Bonpland, Funcke*, n. 12, etc.; in the Andes of Truxillo and Merida, *Linden*, n. 275.

The pellucid dots, intermixed with lines, are very conspicuous, whilst the inflorescence readily distinguishes it from the three following species.

27. *L. CONFERTIFLORUS*, sp. n., glaber, foliolis 3-5 late ovalibus sub-oblongisve pellucido-punctatis, paniculis racemiformibus confertifloris, pedicellis irregulariter subracemiferis, calyce vexilloque tenuiter sericeis. —Foliola pleraque 3-4 poll. longa, $1\frac{1}{2}$ -2 poll. lata, punctis pellucidis ut in præcedente oblongis rotundisve notata, per anthesin membranacea, demum rigidiora et nitidula. Racemi axillares, 3-5-pollicares, fere a basi floribundi, ramulis (seu pedicellis plurifloris) brevibus, pedicellis propriis brevissimis. Bracteæ et bracteolæ minimæ subpersistentes. Flores 5-6 lin. longi. Vexillum basi nudum. Ovula 5?

Hab. Eastern Peru, near Tarapoto, *Spruce*, n. 4219.

28. *L. ARARIPENSIS* (*Benth. in Mart. Fl. Bras. Leg. ined.*), glaber, foliolis 7-11 ovali-oblongis obtusis pellucido-punctatis, paniculis racemiformibus laxis, pedicellis irregulariter subracemiferis, calyce distincte 4-dentato, vexillo glabro basi nudo. —Foliola pleraque semipollicaria. Flores quam in *L. violaceo* minores.

Hab. Brazil, prov. Ceara (*Gardner*, n. 1536).

29. *L. SUBGLAUDESCENS* (*Mart. Fl. Bras. Leg. ined.*), foliolis 9-11 ovatis oblongisve acuminatis glabris subtus glaucescentibus pellucido-punctatis, paniculis laxis, pedicellis plerisque solitariis (ramulis paniculæ racemiferis) calyce vexilloque tenuiter sericeis. —*Sphinctolobium floribundum*, *Vog. Linnæa*, ii. p. 419.

Hab. South Brazil to Minas Geraes.

The inflorescence is that of the following group, whilst the pellucid dots are as in the three preceding species.

§ 6. PANICULATI.

30. *L. PRÆCOX* (*Mart. Fl. Bras. Leg. ined.*), foliolis 9-11 ovalibus oblongisve obtusis glabris impunctatis, paniculis brevibus laxifloris, ramulis (pedicellis) brevibus irregulariter racemiferis, calyce vexilloque tenuiter sericeis.

Hab. Brazil, prov. Minas Geraes.

Somewhat intermediate between the two last in inflorescence, it differs from both in the total absence of any pellucid dots to the leaves.

31. *L. CYANESCENS*, foliolis 9-13 ovalibus oblongisve breviter obtusis acuminatis glabris v. subtus pilis minutis conspersis, paniculis elongato-pyramidatis multifloris, calyce tomentello, vexillo glabro, legumine elongato plano tenui glabro v. juniore pubescente. —*Robinia*

cyanescens, Schum. et Thonn. Beskr. Pl. Guin. p. 351.—Frutex alte scandens. Foliola 3–5-pollicaria, concoloria. Paniculæ partiales 6–10-pollicares, ramulis $\frac{1}{2}$ –1-pollicaribus floribundis, in axillis summis solitariae v. ad apicem rami in paniculam ultrapedalem dispositæ. Flores $4\frac{1}{2}$ lin. longi, violacei, in sicco cyanescentes. Vexillum basi exauriculatum, sed supra unguem medio longitudinaliter bicallosum. Legumen immaturum jam 6–7 poll. longum, 1 poll. latum, 4–5-spermum, fere membranaceum, ad semina paullulum incrassatum et reticulatum, illud *Dalbergiæ* simulans.

Hab. West Tropical Africa, *Thonning*, *Heudelot*, n. 825, *Barter*, n. 1593.

32. *L. LAXIFLORUS* (*Guill. et Perr. Fl. Seneg.* i. p. 226), foliolis subquinis ovalibus oblongisve obtusis v. vix acuminatis glabris v. vix subtus puberulis, paniculis divaricato-ramosis laxifloris, calyce puberulo, vexillo glabro, legumine elongato tenui glabro.—Arbor. Foliola maxima $2\frac{1}{2}$ -pollicaria, pleraque multo minora, sæpe vix pollicaria, pallida, reticulato-venosa. Panicula brevior et laxior quam in *L. cyanescente*, ramulis longioribus dissitifloris. Pedicelli plerique gemini, breves. Flores vix 5 lin. longi, flavi dicuntur, sed color dubius. Vexillum basi auriculis inflexo-subcallosis appendiculatum. Legumen monospermum bipollicare, 2–3-spermum fere 3-pollicare, 6–7 lin. latum, submembranaceum, suturis nerviformibus.

Hab. Senegambia, *Leprieur & Perrottet*, *Heudelot*, n. 152.

33. *L. PHILENOPTERA*, foliolis 5–7 anguste oblongis obtusis v. vix acuminatis glaberrimis, paniculis divaricato-ramosis laxifloris canotomentosis, calyce tomentoso, vexillo glabro, legumine elongato tenui glabro.—*Philenoptera Kotschyana*, Fenzl. Flora, 1844, p. 312; *Philenoptera Schimperiana*, Hochst. Pl. Schimp. exs. et A. Rich. Fl. Abyssin. i. p. 232; *Capassa violacea*, Klotzsch. Pl. Peters. exs.—Frutex v. arbor parva *L. laxiflora* valde affinis, differt foliolorum forma, floribus paullo majoribus, calyce cano-tomentoso. Foliola maxima semipedalia, pleraque 3-pollicaria, circa 1 poll. lata v. etiam minora, nunc viridia concoloria, nunc utrinque glauca v. subtus fere incana. Panicula aphylla, floribunda (e paniculis numerosis subracemiformibus fasciculatis composita) semipedalis v. paullo longior et latior. Flores violacei videntur. Legumen omnino *L. laxiflori*.

Hab. Tropical Africa, chiefly Eastern; Abyssinia, *Schimper*; Fazokal, *Kotschy*, n. 522; Mozambique, *Peters*; near lake Ngami, *M'Cabe*.

34. *L. ? MACROSTACHYUS* (*Hook. fil. Fl. Nig.* p. 317), foliolis 5–7 ovali-oblongis acuminatis subcoriaceis glabris v. subtus minutissime sericeis, paniculis elongatis floribundis minute fusco-pubescentibus, vexillo obovato glabro.—Foliola 4–6-pollicaria. Panicula ultrapedalis, ramulis brevibus densifloris, uti calyces pube minuta atrofusci. Pedicelli brevissimi. Bracteolæ orbiculatæ. Vexillum quam in præcedentibus angustius, basi biauriculatum.

Hab. Western Tropical Africa, *Vogel*.

The pod is unknown; and, as the vexillum is narrower than in most *Lonchocarp*i, the genus is as yet uncertain. It appears, however, much more like a *Lonchocarpus* than a *Millettia*.

§ 7. FASCICULATI.

35. *L. RARIFLORUS* (*Mart. Fl. Bras. Leg. ined.*), foliolis 3-5 ovatis brevi-acuminatis coriaceis supra nitidulis subtus ferrugineo-puberulis, racemis clongatis, floribus fasciculatis, vexillo tenuiter sericeo, ala carinaque rectiusculis, ovulis 2, leguminis suturis nudis.—Foliola 3-5-pollicaria. Racemi sæpe ultrapedales, fasciculis florum dissitis. Flores rubro-purpurei, 5 lin. longi.

Hab. North Brazil (*Spruce*, n. 1726).

36. *L. FLORIBUNDUS* (*Benth. in Ann. Nat. Hist. iii. p. 432, et in Mart. Fl. Bras. Leg. ined.*), foliolis sub-7 ovatis oblongisve acuminatis coriaceis supra glabriusculis nitidis subtus tenuiter sericeis, racemis elongatis, floribus fasciculatis, vexillo sericeo, alis carinaque leviter falcatis, ovulis 2, leguminis glabri sutura vexillari leviter dilatata.—*L. Nicou*, DC. Prod. ii. p. 261, excl. syn. Aubl.—Foliola 2-4-pollicaria. Racemi subpedales. Flores violacei, 5-6 lin. longi.

Hab. Cayenne; British Guiana (*Schomburgk*, 1st coll. n. 238); and Tropical Brazil (*Gardner*, n. 2118; Santarem, *Spruce*).

The *Robinia Nicou* of Aublet is a doubtful plant; the specimen in the Banksian Herbarium consists but of a single leaf, which is more like that of *L. rufescens*; but he describes the stamens as diadelphous.

37. *L. NITIDULUS* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis sub-9 ovali-oblongis acuminatis supra glabris subtus rufo-sericeis, racemis elongatis, floribus fasciculatis, vexillo sericeo, alis carinaque leviter falcatis, ovulis 2, legumine fulvo-sericeo, sutura vexillari ad semina leviter dilatato.—Foliola 2-3-pollicaria. Racemi 1-1½-pedales. Flores rosei, circa 5 lin. longi.

Hab. North Brazil and Venezuela, on the upper Rio Negro and Casiquiare (*Spruce*, n. 3203).

It may perhaps prove to be a variety of *L. floribundus*, although at first sight it has more the aspect of *L. rufescens* and *L. negrensis*, from both of which it differs much in the pod.

β? *Schomburgkii*, foliolis longioribus (circa 4 poll.) subtus petiolis racemisque laxius rufo-pubescentibus.

Hab. British Guiana, *Rob. Schomburgk*, 2nd coll. n. 733, *Rich. Schomburgk*, n. 1111.

38. *L. NEGRENSIS* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis 7-9 ovali-oblongis acuminatis supra glabris subtus tenuiter rufo-sericeis, racemo elongato, floribus fasciculatis, vexillo glabro, alis carinaque

leviter falcatis, ovulis 2, legumine tomentello, sutura vexillari carinato-subalata nec dilatata.—Foliola 3–4-pollicaria v. maxima semipedalia. Racemi 1–1½-pedales. Flores 6 lin. longi.

Hab. North Brazil and Venezuela, on the Rio Negro and Uaupès (*Spruce*, n. 1671, 2347 and 2537).

39. *L. BARTERI*, sp. n., foliolis 5–7 ovalibus oblongisve acuminatis glabris, racemis elongatis basi subramosis fusco-tomentellis, floribus fasciculatis, vexillo tenuiter sericeo ecalloso, alis carinaque rectiusculis, ovulis 5–6.—Frutex alte scandens, primo intuitu *L. rufescenti* et *L. nitidulo* similis, distinguitur imprimis foliolis subtus glaberrimis v. rarius ad costam subtilissime puberulis. Foliola 5–6 poll. longa, fere 3 poll. lata, inferiora cujusve folii multo minora, chartacea, utrinque viridia. Racemi ultrapedales, fasciculis inferioribus interdum in ramulos breves abeuntibus; superioribus nodiformibus. Flores rosei, demum purpurascentes, 6–7 lin. longi. Vexillum late obovatum v. suborbiculatum, basi in unguem angustatum, ecallosum.

Hab. West Tropical Africa, at Nupe on the Niger, *Barter*.

40. *L. RUFESCENS* (*Benth. in Tayl. Ann. Nat. Hist.* iii. p. 432), foliolis 9 amplius oblongo-ellipticis acuminatis supra glabris subtus rufo-sericeis, racemis elongatis, floribus fasciculatis, vexillo leviter sericeo ecalloso, alis carinaque leviter incurvis, ovulis circa 6, legumine plano tenui puberulo suturis tenuibus nudis.—Foliola 4–5-pollicaria v. maxima usque ad 7–8 poll. longa, acumine longiusculo. Racemi 1–1½-pedales, rigiduli, fasciculis dissitis. Flores penduli, rosei, 6 lin. longi. Legumen monospermum 2½ poll. longum 1¼ poll. latum, pleiospermum (quod non vidi) verosimiliter elongatum.

Hab. British Guiana, *Parker, Schomburgk*, 1st coll. n. 745.

The single leaf of Aublet's *Robinia Nicou* preserved in the Banksian Herbarium resembles this more than any other species.

41. *L. SPRUCEANUS* (*Benth. in Mart. Fl. Bras. Leg.* ined.), foliolis 9–13 ovali- v. oblongo-ellipticis acuminatis subtus canescentibus tenuissime sericeis, racemis infrafoliaceis folio sublongioribus, floribus fasciculatis, vexillo sericeo, alis carinaque valde arcuatis, ovulis 8–10.—Differt a *L. densifloro* imprimis floribus subdimidio minoribus. Foliola 1½–2-pollicaria. Racemi 6–10-pollicares, florum fasciculis approximatis. Flores circa 5 lin. longi, violaceo-purpurei. Legumen ignotum.

Hab. North Brazil, near Santarem, *Spruce*.

42. *L. DENSIFLORUS* (*Benth. in Tayl. Ann. Nat. Hist.* iii. p. 433), foliolis 7–9 ovali- v. oblongo-ellipticis acuminatis supra glabris subtus pallidis tenuissime sericeis, racemis infrafoliaceis folio vix longioribus, floribus fasciculatis, vexillo tenuiter sericeo, alis carinaque valde arcuatis, ovulis circa 8, legumine plano tenui, sutura vexillari anguste carinata.—Foliola bipollicaria. Racemi semipedales. Fasciculi florum

approximati v. demum subdissiti. Flores 7 lin. longi, violacei v. lilacini.

Legumen junius tantum vidi, 1-3-spermum.

Hab. British Guiana, *Schomburgk*, 1st coll. n. 52.

β , *Moritzianus*, foliis floribusque majoribus, racemis longioribus.

Hab. Columbia, *Moritz*., n. 880.

43. *L. GLABRESCENS* (*Benth. in Kew Journ. Bot.* ii. p. 233, *et in Mart.*

Fl. Bras. Leg. ined.), foliolis 9 ovali-oblongis breviter acuminatis supra glabris subtus minute puberulis, racemis elongatis axillaribus terminalibusque, floribus fasciculatis, vexillo puberulo, alis carinam valde arcuatam æquantibus, ovulis 8-10, legumine elongato coriaceo suturis nudis.—Foliola pleraque sub-3-pollicaria. Racemi pedales et longiores, fere a basi floribundi.

Hab. North Brazil.

In flower this species is scarcely to be distinguished from *L. densiflorus* but by the somewhat larger leaflets, and the much longer racemes either axillary or terminating the short leafy branches, instead of arising from the leafless part of the older wood, as in *L. densiflorus*. The pod, however (if Martius' fruiting specimens be correctly matched with the flowering ones), is very different; being thick and coriaceous, with a tendency to separate transversely between the seeds, almost as in *Hedysarea*.

44. *L. COSTATUS* (*Benth. in Mart. Fl. Bras. Leg.* ined.), foliolis 9-13

oblongis breviter acuminatis supra glabris subtus discoloribus subpubescentibus, racemis folio vix longioribus axillaribus terminalibusque, floribus fasciculatis confertis, vexillo rufo-sericeo, carina arcuata, ovulis 6-8.—Foliola 2-3-pollicaria. Racemi semipedales. Flores fere sessiles, reflexi, violacei, 4-5 lin. longi. Legumen ignotum.

Hab. South Brazil, prov. Minas Geraes.

45. *L. ? FASCICULATUS*, sp. n., foliolis 7-9 oblongis brevissime acumi-

natis glabris subcoriaceis, panicula ampla ramis divaricatis, floribus nodoso-fasciculatis parvis, vexillo oblongo glabro ecalloso, alis carinaque rectiusculis, ovulis 2.—Frutex in summas arbores altissimas scandens. Foliola 3-4-pollicaria, chartacea v. demum coriacea, venis primariis a costa divergentibus paucis subtus valde prominentibus. Panicula ultrapedalis, ferrugineo-tomentosa, ramulis 3-5-pollicaribus. Fasciculi dense floribundi, secus ramulos dissiti. Flores sessiles, odoratissimi, circa 4 lin. longi. Calyx distincte 4-dentatus. Petala tenuia, angusta. Legumen ignotum.

Hab. Senegambia, *Heudelot*, n. 693.

In this and the following species the calyx and vexillum are much narrower than in the rest of the genus, and the pod is as yet unknown. They may, therefore, have to be hereafter excluded, but in all other respects they agree with *Lonchocarpus*.

46. *L. ? BRACHYPTERUS*, sp. n., foliolis subquinis obovatis orbiculatisve breviter acuminatis supra glabrescentibus subtus molliter canescenti-tomentosis, racemis subramosis cano-tomentosis, floribus fasciculatis,

petalis rigidulis glabris, vexillo oblongo, alis carina brevioribus, ovulis 2.—Frutex alte scandens. Foliola 3-5-pollicaria, mollia, apice rotundata v. truncata, acumine abrupto brevi. Racemi pedales et longiores, fasciculis florum approximatis subsecundis. Flores subsessiles, odoratissimi, roseo-albi, fere 7 lin. longi. Calyx anguste campanulatus, cano-tomentosus. Petala crecta, diu persistentia. Vexillum ecallosum, basi auriculis parvis inflexis appendiculatum. Alæ carina angustiores et triente breviores, more generis supra unguem carinæ cohærentes. Stamina generis. Ovarium longiuscule stipitatum. Legumen ignotum.

Hab. Senegambia, in the Fouta Dhallion, *Heudelot*, n. 828.

In its general aspect, round cottony leaves, and stiff narrow petals, this plant bears a considerable resemblance to an unpublished Mexican one (*Andrieux*, n. 441; *Bates*), which, however, I do not venture now to describe, as it has the tenth stamen entirely free, and the form assumed by the growing ovary, somewhat different from that of *Lonchocarpus*, renders it impossible to fix its genus until the more perfect fruit shall have been examined.

Doubtful Species.

L. roseus, DC., from the fragments that I saw, did not appear to differ much from *L. sericeus*, but neither the specimens nor description are sufficient to make it out.

L. hedyosmus, Miq. Linn. xviii. p. 564, is also probably not distinct from *L. sericeus*.

L. sepium, DC., *L. maculatus*, DC., and probably also *L. pubescens*, DC., belong to Kunth's genus *Gliricidia*, closely allied to *Millettia* and *Wisteria* among *Galegeæ*.

XV. DEERIS, *Lour.*

Pongamiæ et Dalbergiæ, sp. DC. et *Auct. Plur.*, Brachypterum, *W. et Arn.*, Aganope, *Miq.*

Calyx truncatus v. brevissime 4-5-dentatus. Alæ supra unguem carinæ leviter cohærentes. Carinæ petala dorso superne leviter cohærentia. Stamen vexillare ima basi liberum, dein cum cæteris in tubum completum connatum, rarius omnino liberum. Antheræ versatiles. Ovarium bi-pluri-ovulatum. Legumen planum, orbiculare, oblongum v. elongatum, membranaceum coriaceum v. rarius sublignosum, indehiscens, stylo terminali, sutura vexillari v. utraque ala angusta marginata. Semina, si plura, dissita. Radicula inflexa.—Caulis lignosus, alte scandens v. rarissime arboreus. Folia alterna, foliolis oppositis cum impari distante, exstipellata. Racemi subsimplices v. paniculati. Pedicelli fasciculati v. fasciculi rhachi elongata racemoso-sparsi. Flores violacei, purpurei v. albi, nec lutei, petalis (excepta *D. elliptica*) glabris. Calyx peracta anthesi sæpius cyathiformis. Genus a *Lonchocarpis fasciculifloris* non differt nisi leguminis ala.

Sect. 1. BRACHYPTERUM, *W. et Arn.* Vexillum basi nudum. Stamina monadelphæ. Legumen tenue, angustum, utrinque acutatum, sutura

vexillari anguste alata. Pedicelli secus racemos subsimplices fasciculati, fasciculorum rhachi nodiformi v. rarius rhaches in racemulos elongantur et inflorescentia in paniculam irregularem transformatur. Species aliæ scandentes, aliæ arboreæ.

* *Racemosæ.*

1. *D. scandens.* (India, Archipelagus, China austr.)
2. *D. robusta.* (India.)
3. *D. chinensis.* (China austr.)
4. *D. polyphylla.* (Java.)
5. *D. Cumingii.* (Ins. Philippinæ.)
6. *D. parviflora.* (Ceylon.)

** *Paniculatæ.*

7. *D. floribunda.* (Java.)
8. *D. laxiflora.* (Formosa.)
9. *D. paniculata.* (Ceylon.)

Sect. 2. EUDERRIS. Vexillum basi nudum. Stamina monadelphæ (in Americanis rarius subdiadelphæ). Legumen tenue v. coriaceum, latum v. latiusculum, apice sæpius obtusum v. abrupte mucronato-acuminatum, sutura vexillari alata. Inflorescentia *Brachypteri*. Species omnes scandentes.

* *Americanæ.*

10. *D. guianensis.* (America trop.)
11. *D. negrensis.* (Brasilia sept.)
12. *D. longifolia.* (Brasilia sept.)

** *Asiaticæ.*

13. *D. uliginosa.* (Africa orient., India, Archipelagus, China austr.)
14. *D. multiflora.* (Archipelagus Indicus.)
15. *D. Korthalsiana.* (Archipelagus Indicus.)
16. *D. javanica.* (Java.)
17. *D. acuminata.* (India sept.)
18. *D. elegans.* (Burma.)
19. *D. pubinervis.* (Timor.)

Sect. 3. DIPTERODERRIS. Vexillum basi nudum. Stamina monadelphæ. Legumen coriaceum, rarius tenue, latiusculum v. latum, sutura utraque alata (ala carinali rarius hinc inde evanida). Inflorescentia nunc *Brachypteri*, nunc sæpius, fasciculorum rhachibus elongatis, irregulariter paniculata. Species omnes scandentes.

20. *D. ferruginea.* (Ind. v. Burma.)
21. *D. Heyneana.* (Peninsula Indica.)
22. *D. amœna.* (Burma.)
23. *D. Soanogheana.* (Timor.)

24. *D. marginata*. (India sept.)

25. *D. discolor*. (India sept.)

Sect. 4. *PARADERIS*, *Miq.* Vexillum basi bicallosum. Stamina monadelphæ. Legumen coriaceum, latum v. latiusculum, sutura vexillari alata. Florum fasciculi secus racemos subsimplices pedunculati (pedunculi apice bi-pluri-flori). Species omnes scandentes. Foliola dissite pennivenia.

26. *D. elliptica*. (Archipelagus Indicus.)

27. *D. cuneifolia*. (India sept.; Malacca.)

28. *D. oblonga*. (Peninsula Indica; Ceylon.)

29. *D. montana*. (Java.)

30. *D. microptera*. (India sept.)

Sect. 5. *AGANOPE*, *Miq.* (ex parte). Vexillum basi nudum. Stamen vexillare ab initio liberum. Legumen coriaceum, latum, sutura vexillari v. sæpius utraque alata. Racemi thyrsoidæ-paniculati (fasciculorum rhachis omnibus in ramulos sparsifloros excurrentibus).

31. *D. sinuata*. (Ceylon, Burma, Malacca.)

32. *D. polystachya*. (India sept.)

33. *D. thyrsiflora*. (India orient., Archipelagus.)

34. *D. macrophylla*. (Java.)

Sect. 1. *BRACHYPTERUM*.

1. *D. SCANDENS*, scandens, foliolis 9-13 oblongis tenuiter subcoriaceis obtusis muticis retusisve glabris v. subtus minute pilosulis, racemis elongatis simplicibus, floribus nodoso-fasciculatis, ovulis 6-8, legumine elongato-lanceolato utrinque acutato, hinc anguste alato.—*Dalbergia scandens*, Roxb. Pl. Corom. t. 192, DC. Prod. ii. p. 217, Wight, Ic. t. 275; *Brachypterum scandens*, W. et Arn.; *Dalbergia Timorensis*, DC. Prod. ii. p. 417; *Pongamia coriacea*, Grah. in Wall. Catal. n. 5905; *Dalbergia venusta*, Zippel in Linnæa, xv. p. 197, ex *Miq.*; *Dalbergia robusta*, *Miq.* Pl. Hohen. exs. n. 103 non Roxb.—Foliola vulgo 1½-2-pollicaria, apice rotundata v. breviter et obtuse acuminata, secus petiolum brevem approximata, rigidiora quam in *D. robusta*; variant longiora et laxiora, v. pollice breviora et inferiora fere orbiculata, nitida v. opaca. Racemi 4-6-pollicares v. interdum fere pedales. Fasciculi 3-6-flori, rhachi nodiformi v. rarius in ramulum 1-2 lin. longum excurrente. Pedicelli filiformes, 2-4 lin. longi. Bracteolæ parvæ, orbiculatæ. Flores variant 4-6 lin. longi. Ovarium pilosulum. Legumen monospermum 1½-pollicare, pleiospermum 3-pollicare v. interdum longius, 5-6 lin. latum, glabrum v. minute puberulum.

Hab. Southern Asia, Ceylon, and the Peninsula, up to Bombay, in the plains of Central India, Chittagong, *Wallich*, *Hooker and Thomson*; Burma and the Indian Archipelago to Timor and North Australia, *F. Müller*, *Bidwill*; and northward to the Philippines, *Cuming*, n. 1699 and 1844; and South China, *Millett*.

The *Dalbergia elliptica*, Spanoghe, referred here by Miquel, seems to me to read more like the *Dalbergia volubilis*, Roxb., with the pod inaccurately described.

2. *D. ROBUSTA*, arborea, foliolis 13-21 oblongis ellipticisve mucronulatis novellis sericeis demum glabrescentibus membranaceis, racemis elongatis simplicibus, floribus nodoso-fasciculatis, ovulis 6-8, legumine elongato-lanceolato utrinque acutato hinc anguste alato.—*Dalbergia robusta*, Roxb., DC. Prod. ii. p. 417, Wight Ic. t. 244; *D. Krowei* (v. *Crowei*), Roxb., Fl. Ind. iii. p. 229.—Foliola quam in *D. scandente* pallidiora, subtus sæpe canescentia, et semper mucronulata, raro $1\frac{1}{2}$ poll. excedunt et sæpius anguste oblonga; rarius latiora et fere ovata v. obovata. Inflorescentia et flores *D. scandentis*. Legumen angustius, monospermum circa $1\frac{1}{2}$ poll., pleiospermum usque ad 2-2 $\frac{1}{2}$ poll. longum.

Hab. East India, hilly districts; Ceylon, *Macrae*, *Gardner*, n. 246; Peninsula, *Stocks*; Assam, *Griffith*; Khasiya and Chittagong, *Hooker and Thomson*.

3. *D. CHINENSIS* (*Benth. Fl. Hong-Kong, MS.*), arborea?, foliolis 13-19 oblongis ellipticisve obtusis v. acutiusculis muticis novellis sericeis demum glabrescentibus membranaceis, racemis folio subbrevioribus simplicibus, floribus nodoso-fasciculatis, ovulis 2, legumine oblongo utrinque acutato hinc angustissime alato.—Primo intuitu *D. robustam* refert sed foliola non mucronata et ovula in medio ovario 2, nec plurima infra medium sita. Foliola circiter pollicem longa. Racemi sub 4-pollicares. Nodi 2-4-flori. Flores 4-5 lin., pedicello vix lineam excedente. Legumen (in specimine Oosimensi) 1 poll. v. paullo longius, medio 6 lin. latum, monospermum, glabratum, ala angustissima, sutura utrinque nervo elevato marginata at non dilatata ut in *D. Cumingii*.

Hab. South China; Hong-Kong, *Hance*; Oosima Island, *Wright*.

I have only seen Wright's specimens in fruit, and Hance's in flower; there must, therefore, still remain some doubt, until they shall have been seen both in flower and fruit from the same locality.

4. *D. POLYPHYLLA*, foliolis 17-23 oblongo-ellipticis sublanceolatisve acutis supra glabris subtus sericeo-puberulis, racemis folio subbrevioribus simplicibus, floribus nodoso-fasciculatis (ovulis pluribus?), legumine elongato-lanceolato utrinque acutato hinc anguste alato.—*Brachypterum polyphyllum*, Miq. Fl. Ned. Ind. i. p. 139.—Habitus, inflorescentia, et legumen *D. scandentis*, sed foliola numerosa et acutiora. Legumen 2-3-spermum, usque ad 3 poll. longum.

Hab. Java, *Horsfield*.

I have only seen a single fruiting specimen, which appeared to me to be sufficiently distinct from the common *D. scandens*.

5. *D. CUMINGII*, sp. n., arborea?, foliolis 7-17 oblongis submucronulatis novellis sericeis demum glabrescentibus membranaceis, racemis

folio subbrevioribus simplicibus, floribus nodoso-fasciculatis, ovulis 2, legumine lineari-oblongo utrinque acutato cano-sericeo, sutura vexillari suberoso-dilatato angusteque alato.—Foliola fere *D. Chinensis* sed costa sæpius in mucronulam excurrit, foliorum superiorum acuta, inferiorum obtusissima. Racemi 3–4-pollicares, novelli sericei. Bracteæ longe subulatæ, in racemo juniore carnosæ, mox deciduæ. Flores quam in *D. Chinensi* minores. Legumen monospermum, $1\frac{1}{4}$ poll. longum, fere 4 lin. latum inclusa ala $\frac{3}{4}$ -lineari, pube adpressa sericea canescens, sutura vexillari fere ut in *Lonchocarpis Neuroscaphis* dilatata.

Hab. Philippine Islands, *Cuming*, n. 1208.

6. *D. PARVIFLORA*, scandens, glabra, foliolis 7–9 ellipticis v. oblongis brevissime acuminatis membranaceis subtus subglaucescentibus, racemis folio subbrevioribus simplicibus, floribus nodoso-subfasciculatis, ovulis 2, legumine lineari apice oblique apiculato hinc alato glabro.—*Brachypterum elegans*, Thw. Enum. Pl. Ceyl. p. 93 (non *Derris elegans*, Benth.).—Tota glaberrima. Foliola $1\frac{1}{4}$ –2 poll. longa. Racemi in specimine 2–3-pollicares v. (ex Thwaites) folia (4-pollicaria) æquantes. Pedicelli 2 lin. longi. Nodi pauciflori, inferiorum rhachis paullulum elongata. Flores circa 3 lin. longi. Calyx siccitate nigricans. Legumen ex Thw. $1\frac{3}{4}$ – $2\frac{3}{4}$ poll. longum, 6 lin. latum.

Hab. Ceylon, *Thwaites*.

7. *D. FLORIBUNDA*, scandens, foliolis 5 ovato-oblongis obtuse acuminatis glabris præter costam subtus aveniis, paniculis lateralibus multifloris, floribus parvis fasciculatis, staminibus monadelphis.—*Brachypterum floribundum*, Miq. Fl. Ned. Ind. i. p. 139.—Foliola $2\frac{1}{2}$ – $3\frac{1}{2}$ -pollicaria. Paniculæ villosulæ, semipedales. Flores vix 3 lin. longi.

Hab. Java, *Horsfield*.

The pod being unknown, the affinities of this species are uncertain, but it seems to be nearly allied to the two following.

8. *D. LAXIFLORA*, sp. n., scandens, foliolis sub-5 oblongis obtusis subcoriaceis nitidulis glabris, paniculis elongatis laxifloris nodis elongato-racemiformibus, ovulis in medio ovario circa 4.—Foliola fere *D. scandentis*, sed pleraque majora et rigidiora, utrinque nitida et viridia. Panicula $\frac{1}{2}$ –1-pedalis, basi ramo uno alterove elongato instructa, ramulis cæteris brevibus (fasciculorum rhaches elongatæ). Pedicelli sparsi, 3–4 lin. longi. Flores semipollicares. Legumen non visum.

Hab. Formosa, north-west coast, *Wilford*.

The fruit being unknown, the exact relation of this species also is uncertain, but it seems to be nearly allied to the last and the next, except that the flowers are nearly twice the size.

9. *D. PANICULATA*, scandens, foliolis 5–7 oblongis obtusis subcoriaceis glabris, panicula terminali ampla ramosissima adpresse pubescente

ramulis gracilibus, floribus parvis, ovulis circa 4, staminibus monadelphis, legumine oblongo hinc alato. — *Brachypterum Benthamii*, Thw. Enum. Pl. Ceyl. p. 93. — Foliola quam in *D. scandente* majora, pleraque 2-3-pollicaria, maxima usque ad $4\frac{1}{2}$ poll. longa, 2 poll. lata, obtusa v. breviter et obtuse acuminata nec mucronata, petiolulo $1\frac{1}{2}$ -2 lin. longo. Inflorescentia pube minima sericeo-rufescente vestita, irregulariter paniculata; fasciculorum rhaches pleræque in ramulos graciles sparsifloros abeunt, superiores sæpe abbreviatæ, 2-3-floræ. Pedicelli vix lineam longi. Flores vix 3 lin. longi, cæterum iis *D. scandentis* similes. Legumen (ex Thwaites) $1-1\frac{3}{4}$ poll. longum, 6-7 lin. latum. Species ulterius comparanda cum formis nonnullis sub *D. Heyneana* enumeratis quarum legumen ignotum.

Hab. Ceylon, *Walker*; also Thwaites, whose specimens, however, I have not seen.

This and the two preceding species differ from the other *Brachyptera* in their inflorescence, which is nearer to that of some *Dipteroderrides*, and possibly, when better known, will have to be removed into that section, next to *D. Heyneana*.

Sect. 2. EUDERRIS.

* *Americanæ.*

10. *D. GUIANENSIS* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis sub-5 ovatis v. ovali-oblongis acuminatis basi rotundatis coriaceis glabris supra nitidis subtus pallidis v. glaucescentibus, racemis floribundis rufo-pubescentibus simplicibus, pedicellis fasciculatis, legumine oblongo-lineari tenui acutiusculo hinc alato. — *Deguelia scandens*, Aubl. Pl. Gui. p. 750, t. 300, quoad specim. florid. excl. leg.; *Lonchocarpus pterocarpus*, DC. Prod. ii. p. 260. — *Alte scandens*. Foliola 3-5-pollicaria v. maxima usque ad 7 poll. longa, 4 poll. lata. Racemi axillares v. laterales, 4-8-pollicares, a basi floribundi. Flores 4-5 lin. longi. Ovula 2. Legumen sessile, monospermum 2-3-pollicare, 2-spermum 4-5-pollicare, circa 9 lin. latum, inclusa ala $1\frac{1}{2}$ lin. lata.

Hab. Tropical America, Cayenne, *Aublet*, *Perrottet*; Surinam, *Wallschnagel*, n. 839, also *Kegel*, 1174 (*Miquel*); British Guiana, *Rob. Schomburgk*, 1st coll. n. 564, 2nd coll. n. 953; *Rich. Schomburgk*, n. 1317.

Aublet's flowering specimens in the British Museum certainly belong to this species, although his figure even of the flowering plant is not a very good representation of it, and the fruit, evidently mismatched, is precisely that of the *Müllera moniliformis* when reduced to a single seed. The *D. guianensis*, in the shape of the pod, comes as near to the section *Brachypterum* as to *Euderris*, but I have placed it in the latter on account of the very close resemblance of the whole plant to the two following species.

11. *D. NEGRENSIS* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis sub-5 ovatis v. ovali-oblongis acuminatis basi rotundatis coriaceis supra glabris nitidis subtus pilis minutis conspersis, racemis floribundis ferrugineo-tomentosis simplicibus, pedicellis fasciculatis, legumine ovali coriaceo obtuso hinc alato.—Specimina florida a *D. guianensi* vix distinguenda nisi forte pube paginæ inferioris foliolorum; racemi etiam sæpius longiores et laxiores et flores paullo majores potius ochroleuci dicuntur quam albi. Legumen distinctissimum, $1\frac{1}{2}$ –2 poll. longum, $1-1\frac{1}{4}$ poll. latum, apice rotundatum vix apiculatum, rigide coriaceum, minute subglaucopuberulum.

Hab. North Brazil (*Spruce*, n. 1906 & 1926).

12. *D. LONGIFOLIA* (*Benth. in Mart. Fl. Bras. Leg. ined.*), foliolis sub-5 oblongis acuminatis basi angustatis coriaceis supra glabris nitidis subtus pilis minutis conspersis, racemis floribundis ferrugineo-tomentosis simplicibus, pedicellis fasciculatis, legumine ovali membranaceo juniore rufo-velutino.—Præcedentibus legumine excepto valde affinis. Foliola angustiora, vulgo 3–4 poll. longa, $1\frac{1}{2}$ poll. lata, maxima 7 poll. longa, 2 poll. lata. Flores 5–6 lin. longi, ochroleuci. Stamen vexillare sæpius liberum v. medio cum cæteris leviter cohærens. Ovula 2. Legumen fere *D. uliginosæ*, nisi pubescens, $1\frac{1}{2}$ –2 poll. longum, $1-1\frac{1}{4}$ poll. latum.

Hab. North Brazil, *Spruce*, n. 1169.

** *Gerontogææ*.

13. *D. ULIGINOSA* (*Benth. in Pl. Jungh. i. p. 252*), scandens, glabra, foliolis 3–7 ovatis v. ovali-oblongis acuminatis, racemis axillaribus lateralibusve subsimplicibus, pedicellis fasciculatis calyce non longioribus, staminibus monadelphis, ovulis ad basin ovarii plurimis, legumine oblique ovali v. orbiculato 1–2-spermo plano tenui glabro hinc anguste alato.—*Pongamia uliginosa*, DC. Prod. ii. p. 416; *Derris Forsteniana*, Miq. Fl. Ned. Ind. i. p. 144 ex descr.—Foliola $1\frac{1}{2}$ –2-pollicaria, acumine brevi obtuso, tenuiter coriacea, nitidula. Racemi 2–3-pollicares v. summi semipedales. Florum fasciculi dissiti, rhachi nodiformi v. parum elongata, raro ramulum semipollicarem formante. Pedicelli floridi circa 1 lin., flores 4 lin. longi. Calyx sæpe coloratus, glaber v. minute puberulus. Ovarium pubescens v. glabratum. Ovula sæpius 6–8, omnia infra medium ovarii. Legumen $1-1\frac{1}{2}$ -pollicare, nunc æque latum ac longum, nunc fere dimidio angustius apice basique obtusissimum v. retusum. Semina 1–2, reniformia.

Hab. Southern Asia. Common in East India, from Ceylon and the Peninsula, over the plains of Central India, to Khasiya, *Hooker & Thomson*, and Burma, *Wallich*; extending eastward over the Indian Archipelago to the Isle of Pines, *Macgillivray*; Tongatabou, *Amer. Expl. Exped.*; North-west Australia, Fitzmaurice River, *F. Müller*;

northward to Loochoo, *Wright*, and South China; and westward to Madagascar, *Bojer*; and eastern Africa, Luabo River, *Livingstone*.

β , *Loureiri*, foliolis 3-5, racemis elongatis, ovario glabriore, ovulis sæpius 4 (infra medium ovarii sita, ut in forma normali).—*Derris trifoliata*, Lour. Fl. Cochinch. p. 433; *D. affinis*, Benth. Pl. Jungh. i. p. 252 in adnot.

Hab. China, *Millett*; Cochinchina, *Loureiro*, *Gaudichaud*; Malacca, *Griffith*.

14. *D. MULTIFLORA* (*Benth. Pl. Jungh.* p. 253), scandens, foliolis sub-5 ovatis oblongisve obtuse acuminatis ramulisque subglabris, racemis lateralibus floribundis subsimplicibus ferrugineo-pubescentibus, pedicellis fasciculatis calyce longioribus, staminibus monadelphis, ovulis in medio ovario circa 3, legumine "oblique rotundato."—Foliola in forma normali fere *D. uliginosæ*, a qua hæc species differt racemis pubescentibus floribundis, pedicellis longioribus et præsertim ovulis in medio ovario dissitis nec ad basin approximatis. Legumen ipse non vidi.

Hab. Java, *Junghuhn*.

β ? *longifolia*, foliolis 3-4 poll. longis, 1-1½ poll. latis.

Hab. Philippine Islands, *Cuming*, n. 1162.

Without the fruit it is difficult to judge of the precise affinities of these specimens.

15. *D. KORTHALSIANA* (*Miq. Fl. Ned. Ind.* i. p. 143), glabra, foliolis 5 ellipticis v. elliptico-oblongis obtusis coriaceis subtus prominente penniveniis et reticulato-venulosis, racemis axillaribus lateralibusque confertis folio subbrevioribus, floribus parvis, calyce pubescente, legumine (junior) late elliptico membranaceo pubescente hinc angustissime alato.—Foliola 2-4 (vulgo 3½) poll. longa, 9-17 lin. lata, apice attenuato-emarginata, breviter petiolulata. Rami florentes haud raro crassi. Racemi 3-5-pollicares. Pedicelli hirsutuli. Flores circa 2 lin. longi.

Hab. Borneo, *Korthals*; the Moluccas (*Miquel, l. c.*).

I have not seen this species. It appears to differ from *D. uliginosa* in its much larger leaflets, and in the flowers, which are smaller than in any species known to me. The ovary is not described.

16. *D. JAVANICA* (*Miq. Fl. Ned. Ind.* i. p. 143), scandens, foliolis 5 ovatis v. ovali-oblongis breviter acuminatis glabris præter costam subaveniis, racemis axillaribus subsimplicibus, legumine oblongo obtuso plano tenui glabro hinc latiuscule alato.—Folia *D. uliginosæ*, sed legumen plus duplo longum quam latum.

Hab. Java, *Horsfield*.

According to *Miquel*, this is near *D. Korthalsiana*. It is, however, described from a fruiting specimen only, which has the leaves of *D. uliginosa*, but a very much narrower pod.

17. *D. ACUMINATA* (*Benth. Pl. Jungh. i. p. 252 in adnot.*), glabriuscula, scandens, foliolis 7–11 oblongis acuminatis submembranaceis reticulato-venosissimis, racemis elongatis subramosis puberulis, pedicellis fasciculatis calyce paullo longioribus, vexillo nudo, ovulis 5–6 dissitis.—*Pongamia elongata*, Grah. in Wall. Catal. n. 5886, non 5915*; *P. acuminata*, Grah. l. c. n. 5901.—Foliola vulgo 3–4 poll. longa 1–1½ poll. lata, longiuscule acuminata, adulta subchartacea, subtus pallidiora elevato-pennivenia et creberrime reticulato-venulosa. Racemi infrafoliacei v. laterales rarius axillares, 4–8 poll. longi, tenuissime ferrugineo-puberuli. Flores purpurei, circa 6 lin. longi; fasciculorum rhaches nodiformes v. rarius in ramulos 2–3 lin. longos excurrentes. Pedicelli 2–3 lin. longi. Vexillum late ovatum, basi in unguem calycem æquantem attenuatum. Legumen non visum.

Hab. Nepaul, Wallich; Sikkim, Hooker.

18. *D. ELEGANS* (*Benth. in Pl. Jungh. i. p. 252 in adnot.*), foliolis 5–9 amplis ellipticis oblongisve membranaceis subtus ad costas petiolis ramulisque novellis hispidis, racemis lateralibus brevibus subsimplicibus, pedicellis fasciculatis v. inferioribus subracemosis calyce villosio longioribus, ovulis in medio ovario 4, legumine orbiculato v. oblongo tenui pubescente hinc alato.—*Pongamia elegans*, Grah. in Wall. Catal. n. 5883; *P. floribunda*, Grah. l. c. n. 5884.—Foliola pleraque 5–6 pollicaria, petiolulo abbreviato. Pubes ferruginea, laxa. Racemi 3–5 pollicares. Flores 6–7 lin. longi, fasciculorum inferiorum rhachis interdum in ramulum brevem excurrit. Legumen rufo-pubescentis v. villosum, cæterum fere *D. uliginosæ*, 1–1½ poll. longum, 10–12 lin. latum.

Hab. Burma: Phonac and Troglah Hills, Wallich.

19. *D. PUBINERVIS*, ramulis ferrugineo-tomentosis, foliolis 11 elliptico-ovatis abrupte acuminatis basi rotundatis supra glabris nitidis subtus glaucescentibus parallele venosis ad venas pubescentibus, paniculis axillaribus folii longitudine, legumine ovato sutura anguste alata.—*Dalbergia pubinervis*, Span. Linnæa, xv. p. 197.—Caulis volubilis. Foliola opposita. Legumen monospermum pollicare.

Hab. Timor, Spanoghe.

I have not seen any specimen, but Spanoghe's character seems to indicate a *Derris* allied to *D. elegans*.

Sect. 3. DIPTERODERRIS.

20. *D. FERRUGINEA* (*Benth. in Pl. Jungh. i. p. 252 in adnot.*), foliolis 7–9 obovali-oblongis ellipticisve subacuminatis subtus ad venas elevatas petiolis ramulis inflorescentiaque ferrugineo-villosis, racemis elongatis

* *Pongamia elongata*, n. 5915, is a very doubtful species. With the leaflets rather longer than in *D. scandens*, it has a broad, rather thick pod, with a very narrow wing. There are no flowers to the only specimen in the collection.

ramosis, pedicellis subfasciculatis calyce villosa longioribus, ovario villosa, ovulis 4, legumine coriaceo tomentello hinc v. utrinque rigide alato.—*Robinia ferruginea*, Roxb. Fl. Ind. iii. p. 329; *Pongamia ferruginea*, Wall. Catal. n. 5885; *P. oblonga*, Wall. Catal. n. 5893 (folia).—Foliola 3-5-pollicaria, subtus elevato-pennivenia, inter venas sparse pilosula et sub lente punctata, supra glabra, nitidula. Paniculæ axillares, irregulariter ramosæ, fasciculorum rhachibus sæpe in ramulos breves excurrentibus. Pedicelli 2-3 lin. longi; flores circa 4 lin. Vexillum ovatum. Legumen monospermum 2-pollicare, 2-spermum 4-pollicare, rigide coriaceum, sutura vexillari lateraliter dilatata (utrinque nervo elevato aucta) dorso latiuscule rigideque alata, sutura carinali nunc nuda nunc sæpius anguste alata.

Hab. Eastern India: Silhet, Wallich, Hooker & Thomson; Assam, Jenkins; Burma, on the Attran river, Wallich.

21. *D. HEYNEANA* (Benth. in *Pl. Jungh.* i. p. 252 in adnot.), glabra v. tenuissime rufo-tomentella, foliolis 5-7 ovatis v. ovali-oblongis obtuse acuminatis coriaceis dissite penniveniis reticulatisve, paniculis gracilibus ramosis, pedicellis calyce paullo longioribus, legumine coriaceo utrinque alato.—*Pongamia Heyneana*, Grah., W. & Arn. Prod. i. p. 263; *P. paniculata*, Wight, Herb. n. 920.—Foliola 2-3 poll. longa, 1-2 poll. lata, nitidula, venis primariis rete venularum tenuissimo, petiolulo vix 2 lin. longo. Paniculæ floribundæ, $\frac{1}{2}$ -1-pedales; ramuli ultimi v. fasciculorum rhachis 3-6 lin. longi. Pedicelli 2 lin., flores circa 5 lin. longi. Ovarium puberulum, ovulis vulgo 4. Legumen glaberrimum, glaucum, 1-spermum 2-pollicare, 3-spermum 4-pollicare, fere 1 poll. latum inclusis alis latiusculis coriaceis.

Hab. East Indian peninsula, Heyne.

β , *parviflora*, glaberrima, floribus 4 lin. longis.

Hab. Concan, Stocks.

γ ? *brevipes*, foliis glaberrimis, inflorescentia ferrugineo-tomentosa, fasciculorum rhachibus abbreviatis, pedicellis calyce sæpius brevioribus.—

D. ovalifolia var. ? *coriacea*, Benth. in *Pl. Hohen.* exs.

Hab. Concan, Stocks; Nilgherry Hills, Hohenacker, n. 1597 & 1598.

There is no fruit to these specimens, and I cannot tell whether they belong to the *D. paniculata* or to the present species.

22. *D. AMÆNA* (Benth. in *Pl. Jungh.* i. p. 252 in adnot.), glabra, foliolis ovatis oblongisve obtuse acuminatis crebre parallele venosis, racemis fasciculato-subpaniculatis, pedicellis fasciculatis, ovario puberulo, ovulis 2, legumine coriaceo glaberrimo glauco hinc v. utrinque alato.—*Pongamia amœna*, Wall. Catal. n. 5912.—Foliola forma et consistentia iis *D. Heyneanae* subsimilia, sed venæ primariæ a costa divergentes numerosæ, rete intermedia vix ulla. Racemi glaberrimi, simplices v. basi ramosi, 4-5-pollicares, floribundi. Rhachis fasciculorum nodiformes. Pedicelli 1-2 lin. longi; flores vix 3 lin. Legumen 1-2-spermum,

3-4-pollicare, circa pollicem latum, inclusis alis, quarum vexillaris 1-2 lin. lata carinalis vix 1 lin. v. interdum evanida.

Hab. Moulmyne, *Wallich*; Mergui, *Griffith*.

23. *D. SPANOGHEANA* (*Blume in Miq. Fl. Ned. Ind.* i. p. 142), glabra, foliolis 7-9 ellipticis v. ovali-ellipticis obtuse subacuminatis venis pluribus e costa subpatulis, paniculis axillaribus hirtellis, legumine late elliptico membranaceo utrinque alato.—Petioli communes 2-3½-pollicares. Foliola circa 3 poll. longa, 10-12 lin. lata, pergamaceo-chartacea. Paniculæ folium superantes, ex ima basi ramosæ, ramuli ultimi (fasciculorum rhaches) breves, pauciflori. Flores breviter pedicellati, circa 2 lin. longi. Legumen juvenile circa 1 poll. longum.

Hab. Timor, *Spanoghe*.

I have not seen this species, but from Miquel's description it must be near the *D. amœna*.

24. *D. MARGINATA* (*Benth. in Pl. Jungh.* i. p. 252 in adnot.), glabra, foliolis 5-7 oblongis acuminatis nitidis, racemis subramosis gracilibus laxis, pedicellis filiformibus calyce 3-4-plo longioribus, ovario glabro, ovulis circa 6, legumine glabro oblongo vix coriaceo utrinque alato.—*Dalbergia marginata*, Roxb. Fl. Ind. iii. p. 241; Wight, Ic. t. 87; *Pongamia emarginata*, Wall. Catal. n. 5909, non 5896; *Aganope marginata*, Miq. Fl. Ned. Ind. i. p. 152—Foliola 3-5 poll. longa, 1-1½ v. rarius 2 poll. lata, coriacea, nitidula, tenuiter dissite pennivenia et reticulato-venulosa. Racemi folio breviores, rhachi gracillima. Pedicelli solitarii v. rarius 2-3, vix semipollicares. Flores 8-9 lin. longi, petalis longe unguiculatis. Legumen monospermum, 3-4 poll. longum, 1¼-1½ poll. latum, ala vexillari sæpe 3 lin., carinali fere 2 lin. lata.

Hab. Khasiya, *Wallich*, *Hooker & Thomson*.

Readily known by its long slender pedicels and large thin pod.

- 25? *D. DISCOLOR*, sp. n., glabra, foliolis 5-9 cuneato- v. obovali-oblongis coriaceis subtus glaucis, racemis lateralibus vix ramosis, pedicellis apice 2-3-floris, legumine crasso-coriaceo glauco nitidulo utrinque alato.—Foliola 3-4-pollicaria, iis *D. cuneifolia* subsimilia nisi rigidiora; inflorescentia etiam *D. cuneifolia* sed legumen cum descriptione Roxburghiana istius speciei haud convenit; crasso-coriaceum est ut in *Pongamia*, sed durius et ut in cæteris *Derridibus* transverse reticulato-venosum. Sutura utraque anguste coriaceo-alata et utrinque juxta alam costa prominente percursa. Flores mihi desunt.

Hab. Khasiya, *Hooker & Thomson*; Sikkim, lower hills, and Terai, *Hooker*.

This species has the inflorescence of *Paraderis*, with the pod of *Dipteroderris*.

Sect. 4. PARADERIS.

26. *D. ELLIPTICA*, molliter rufo-pubescent, foliolis 7-13 elliptico- v. cuneato-oblongis obovatisve submembranaceis, racemis laxis, pedun-

culis apice plurifloris, vexillo sericeo basi biappendiculato, legumine subcoriaceo tomentello hinc anguste alato.—*Pongamia elliptica*, Wall. Pl. As. Rar. iii. p. 20, t. 237, Wight, Ic. t. 420; *Galedupa elliptica*, Roxb. Fl. Ind. iii. p. 242; *Pongamia volubilis*, Zoll. et Mor. Vez. p. 3; *P. dubia*, Grah. in Wall. Catal. n. 5899; *P. Horsfieldii*, Miq. Fl. Ned. Ind. p. 149 et (ex descr.) *P. hypoleuca*, Miq. l. c. p. 148.—Alte scandens, tota pube laxa in partibus novellis dense sericea in foliis adultis nonnunquam subevanida rufescit. Foliola 3–5-pollicaria, per anthesin membranacea, utrinque plus minus pubescentia, dissite pennivenia, acumine brevi obtuso, petiolulo brevi, adulta rigidiora et supra demum glabrescentia subtus rufescenti-subglauca. Racemi nunc breves, nunc 8–10-pollicares. Fasciculorum rhaches ipsæ brevissimæ sed pedunculo communi nunc 3–4 lin. nunc usque ad 1–1½ poll. longo fultæ. Pedicelli 2–3 lin. longi. Flores circa 10 lin. longi, in genere insignes vexillo ut in *Millettiis* plerisque extus dense rufo-sericeo. Ovarium villosum, ovulis 3–4. Stamina medio monadelpha. Legumen (quod rarius vidi) 1-spermum 1½-pollicare, 3-spermum 3–4-pollicare, circa 9 lin. latum, haud crasse coriaceum, ala raro 1 lin. lata.

Hab. Indian Archipelago, Amboyna, and Malay Islands, *Roxburgh*; Java, *Zollinger*, n. 315; Borneo (*Miquel*, l. c.); Siam, *Schomburgk*; Attran and Moolmyne, *Wallich*.

27. *D. CUNEIFOLIA* (*Benth. in Pl. Jungh. i. p. 253 in adnot.*), glabra, foliolis 5–7 (rarissime 9–11) oblongis subcuneatis obovatisve obtusis v. breviter acuminatis submembranaceis, racemis laxis brevibus subramosis, pedunculis apice 2–3-floris, vexillo glabro basi calloso, ovario villosa, ovulis 2, legumine “orbiculato acuminato.”—*Galedupa marginata*, Roxb. Fl. Ind. iii. p. 241; *Pongamia marginata*, Wall. Catal. n. 5896; *P. cuneifolia*, Grah. in Wall. Catal. n. 5887; *P. obovata*, Wall. Catal. n. 5897.—Alte scandens. Foliola per anthesin 2–3-pollicaria, membranacea. Racemi 2–4-pollicares, infrafoliacei v. in ramulis per anthesin aphyllis subpaniculati. Pedunculi 2–4 lin., pedicelli vix 2 lin. longi. Flores 6 lin. longi. Vexillum basi callis 2 in ungue subdecurrentibus auctum. Legumen a *Roxburghio* descriptum ipse non vidi.

Hab. Northern India: Nepaul and Sillet, *Wallich*; Sikkim, lower hills, *Hooker*.

β, malaccensis, foliolis evidenter acuminatis, floribus fere 8 lin. longis, nec aliter diversa videtur.

Hab. Malacca, *Griffith*.

The same species is also indicated by *Miquel* as found in Celebes; I have not myself seen the specimens.

28. *D. OBLONGA*, glabra, foliolis 9–17 elliptico-oblongis subcuneatis v. terminali obovato-oblongo membranaceis, racemis lateralibus brevibus laxis, pedunculis brevibus apice 2–3-floris, vexillo glabro basi sub-

calloso, ovario pubescente, ovulis 3, legumine coriaceo ovali recurvo-mucronato hinc alato.—*D. ovalifolia*, var., Benth. Pl. Jungh. p. 252 in adnot.; Thw. Enum. Pl. Ceyl. p. 92, excl. syn. W. et Arn.—Valde affinis *D. cuneifolia*, differt foliolis numerosis angustioribus vulgo $1\frac{1}{2}$ –2 poll. longis 6–9 lin. latis, floribus sæpius paullo minoribus, vexilli callis minus prominulis. Legumen $1\frac{1}{2}$ -pollicare, 9–11 lin. latum.

Hab. East Indian peninsula: Concan, *Stocks*; Ceylon, *Walker, Gardner*, n. 476, *Thwaites*.

The *Pongamia ovalifolia*, W. & Arn., according to Wight's figure, has not the peculiar inflorescence of the *Paraderris* section, and has differently shaped leaflets.

29. *D. MONTANA* (*Benth. in Pl. Jungh. i. p. 253*), glabra, foliolis 7–9 amplis oblongis acuminatis, racemis laxis vix ramosis, pedunculis apice sub-3-floris, vexillo glabro basi calloso, ovario tomentoso, ovulis circa 8.—*D. cuneifolia* affinis, differt foliis floribusque multo majoribus, ovulorum numero, &c. Foliola 4–5-pollicaria. Racemi semipedales v. breviores. Pedicelli circa 2 lin. longi, pedunculo communi 3–6 lin. longo fulti. Flores 9–10 lin. longi. Legumen ignotum.

Hab. Java, *Junghuhn*.

30. *D. MICROPTERA*, sp. n., glabra, foliolis 5–9 oblongis longe acuminatis membranaceis, racemis elongatis laxiusculis, pedicellis 2–3-nis sessilibus v. brevi-pedunculatis, vexillo glabro basi calloso, ovario pubescente, ovulis 4–6, legumine oblongo, sutura vexillari subdilatata et angustissime alata.—Habitu et vexillo calloso *D. cuneifolia* approximatur. Foliola subsimilia sed in acumen semipollicare abrupte producta. Racemi $\frac{1}{2}$ –1-pedales, glabri. Nodi floriferi nunc sessiles nunc pedunculo 1–2 lin. longo fulti. Pedicelli circa 3 lin. longi. Vexillum semipollicare. Legumen 2–4 poll. longum, 1 poll. latum, 1–3-spermum, tenue, reticulatum, ad suturam ut in *Lonchocarpus floribundo* et *L. nitidulo* leviter dilatatum; ala etiam nonnunquam evanescit, sæpius fere $\frac{1}{2}$ lin. lata est.

Hab. Sikkim, *Hooker*.

This is one of those species which intimately connects *Derris* with *Lonchocarpus*.

Sect. 5. AGANOPE.

31. *D. SINUATA* (*Thw. Enum. Pl. Ceyl. p. 93*), glabra, foliolis 5–7 amplis ovatis suborbiculatisve coriaceis nitidis, panicula rigida terminali, stamine vexillari libero, legumine coriaceo rigido glaberrimo inter semina sinuato hinc alato.—*Pongamia sinuata*, Wall. Catal. n. 5911; *P. grandifolia*, Grah. in Wall. Catal. n. 5882, non Zoll. et Mor.—Foliola 3–5 poll. longa, 2–4 poll. lata. Racemi breves, in paniculam elongatam angustam terminalem dispositi. Pedunculi 1–2 lin. longi, 1–2-flori, pedicellis brevissimis. Rhachis et calyces tenuiter rufo-v: subcanescenti-tomentelli. Vexillum 6 lin. longum ut in *Para-*

derri reflexum, sed basi nec callosum nec auriculatum, in unguem latiusculum contractum. Stamen vexillare ab initio liberum. Ovarium vix puberulum, ovulis 5-6. Legumen sæpe falcatum, monospermum 2-pollicare, 4-spermum 8-pollicare, 1-1½ poll. latum, tenuiter reticulatum, indehiscens, inter semina plus minus constrictum.

Hab. Ceylon, *Thwaites*; Martaban, Tavoy, and Singapore, *Wallich*; Malacca, *Griffith*.

32. *D. POLYSTACHYA*, sp. n., foliolis 5-7 ovatis oblongisve acuminatis subcoriaceis glabris nitidulis tenuiter penniveniis, paniculis pluribus subracemiformibus elongatis, ramulis abbreviatis, pedicellis sparsis calyce longioribus, stamine vexillari libero, legumine utrinque alato.—Foliola quam in *D. thyrsiflora* tenuiora et minus reticulata. Paniculae racemiformes (v. rami primarii paniculae subfoliatæ), plures, ½-1-pedales, floribundæ, ramulis (v. fasciculorum rhachibus elongatis) inferioribus ½-1-pollicaribus, summis interdum ad nodos floriferos reductis. Pedicelli 2-3 lin. longi. Flores semipollicares. Vexillum subsessile, ovatum, ecallosum. Stamen vexillare tenuiter puberulum. Ovarium pubescens, ovulis circa 4. Legumen junius utrinque alatum, perfectum non vidi.

Hab. Khasiya, *Hooker & Thomson*.

The *Pongamia secunda*, Grah. in Wall. Catal. n. 5890, from Goalpara, *Hamilton*, may possibly be the same species, with rather longer points to the leaves and rather smaller flowers; but I have seen neither the stamens nor the pod.

33. *D. THYRSIFLORA*, foliolis 7-11 obovatis oblongisve obtusis v. breviter acuminatis subcoriaceis glabris nitidulis reticulato-penniveniis, panicula elongato-thyrsoidea terminali rufo-tomentella, pedicellis brevissimis sparsis, stamine vexillari libero, legumine "utrinque alato."—*Millettia thyrsiflora*, Benth. in Pl. Jungh. p. 249 in adnot.; *Aganope floribunda*, Miq. Fl. Ned. Ind. i. p. 151.—Foliola nunc omnia 2-3½-pollicaria, nunc pleraque 4-6-pollicaria, subconcoloria. Panicula anguste pyramidata, ½-1-pedalis, solitaria v. basi in paniculas similes 2-3 divisa, ramulis a basi ad apicem decrescentibus sparsifloris. Flores 4-5 lin. longi, glabri, siccitate nigricantes. Vexillum nudum, ungue brevissimo. Ovarium plus minus villosum, ovulis 4. Legumen ipse non vidi; ex Miq. reticulatum est, 2½-3 poll. longum, 1 poll. latum, obtusum, monospermum, utrinque alatum.

Hab. Eastern India and the Archipelago: Khasiya and Malacca, *Griffith*; Penang, *Phillips*; Sumatra, *Miquel*, l. c.; Java, *Zollinger*, n. 808.

34. *D. MACROPHYLLA*, foliolis 3-5 amplis late ellipticis submembranaceis puberulis glabrescentibusque, paniculis folio subbrevioribus, pedicellis brevissimis, stamine vexillari libero (legumine utrinque alato?)—*Aganope macrophylla*, Miq. Fl. Ned. Ind. i. p. 152.—Præcedenti

proxima, sed folia majora, paniculæ minores, cum calycibus minus tomentellæ.

Hab. Java, *Blume* (*Miquel, l. c.*).

I have not seen this plant.

Doubtful Species.

Pongamia ovalifolia, W. et Arn. Prod.; Wight, Ic. t. 328, from the Peninsula, appears from the figure to have the foliage of the *Paraderris* section, with the inflorescence and flowers rather of *Euderris* or *Brachypterum*. I have not seen the specimen, and the fruit is unknown; so that it is impossible to define it accurately, or to judge of its affinities. The Peninsula and Ceylon plants I formerly referred to it are certainly distinct, and are above described as *Derris oblonga*.

Derris acuminata, Miq. Fl. Ned. Ind. i. p. 144 (non Benth.), from Java and Sumatra, and *D. pubipetala*, Miq. l. c. p. 145, from Java, differ from all other species except *D. elliptica* in their silky vexillum, and from that one in many particulars. The fruit is unknown in both; and from Miquel's description I should strongly suspect they may belong to *Millettia*. I have seen no specimens.

Pongamia corallaria, Miq., is taken up from a rude figure of Rumphius's. *Dalbergia rostrata*, Hassk., described by the author from leaves only, and which I thought might be those of *Derris uliginosa*, is enumerated by Miquel as a species of *Millettia*, with a note of doubt. This practice of publishing species from unintelligible figures or imperfect specimens without flowers or fruit or other means of future identification, far from contributing to the advancement of science, only serves to bewilder and confuse. Upon this principle I have passed by some *Pongamias* of Wallich's Catalogue, and other specimens, of which we have mere fragments, although apparently representing species of *Derris* distinct from any of the above.

XVI. PONGAMIA, *Vent.*

Galedupa, *Lam.*

Flos *Lonchocarp*i. Legumen oblongum, plano-compressum, crasse coriaceo-subcarnosum, indehiscens, monospermum, suturis obtusis nudis. Semen reniforme, crassiusculum, hilo parvo. Genus vix a *Lonchocarpo* distinctum.

Species unica.

P. GLABRA, *Vent.*, DC. Prod. ii. p. 416; *P. grandifolia*, Zoll. et Mor. Verz. p. 3; Miq. Fl. Ned. Ind. i. p. 147 (ex descr.). Arbor. Folia alterna, glabra. Foliola 5-7, opposita cum impari distante, exstipellata, ovata, late elliptica v. suboblonga, breviter et obtuse acuminata, subtripollicaria, petiolulo 3-4 lin. longo; variant tamen interdum multo majora. Racemi laxi, 3-5-pollicares, tenuiter puberuli v. glabri. Pedicelli graciles, 2-4 lin. longi, gemini v. nodis 2 approximatis sub-4-ni.

Calyx late truncatus. Flores 6-7 lin. longi. Vexillum oculo nudo glabrum etsi sub lente pubes sericea tenuissima sæpe apparet, basi auriculis inflexis appendiculatum. Stamina more *Lonchocarpi* monadelphæ. Ovarium villosulum, biovulatum. Legumen vulgo $1\frac{1}{2}$ -2 poll. longum, 1 poll. latum, oblique v. interdum subfalcato-oblongum, stylo acutatum v. obtusum, basi acutiusculum subsessile.

Hab. Throughout Southern India, from Ceylon, the Peninsula, and Bombay, to Pegu and Malacca, very common all over the coast, and in the plains extending northward to the foot of the hills. Abundant in the Indian Archipelago, extending northward to South China and Loo Choo, and eastward to the Feejees, Timor, and Tropical Australia. The other species formerly considered as *Pongamias* are now referred chiefly to *Derris* and to *Millettia*.

XVII. PISCIDIA, *Linn.*

Flos *Lonchocarpi*. Legumen lineare, plano-compressum, indehiscens, polyspermum, longitudinaliter 4-alatum, *i. e.* sutura utraque utroque latere aucta ala lata membranacea transverse venosa.

Species unica.

P. ERYTHRINA, *Linn.*, *DC. Prod.* ii. p. 267; *P. Carthagensis*, *Jacq.*, *Linn.*, *DC. l. c.* Arbor, foliis alternis pinnatis exstipellatis. Ramuli et petioli tomentoso-puberuli. Foliola 7-11, opposita cum impari distante, ovalia obovalia v. late oblonga, obtusa v. breviter acuminata, demum coriacea, supra glabra, subtus elevato-pennivenia et plus minus tomentella rufescentia v. pallentia, 2-4 poll. longa, petiolulo 2-3-lineari. Paniculæ laterales, sub anthesi aphyllæ, cano-sericeæ, nunc ovatæ densifloræ, vix 3-pollicares, nunc elongato-thyrsoideæ $\frac{1}{2}$ -1-pedales. Ramuli (fasciculorum rhaches elongatæ) breves, 3-12-flori. Pedicelli sparsi, 2-3 lin. longi. Flores 7-8 lin., albo et sanguineo mixti. Calyx cano-sericeus, dente infimo late triangulari, superioribus latis obtusissimis. Vexillum extus cano-sericeum, ungue calycem subæquante. Ovarium sericeum, ovulis 10-12. Legumen 2-4-pollicare, cano-tomentellum v. glabrescens, parte seminifera 3-4 lin. lata, inter semina subconstrictum; alæ omnes 6-10 lin. latæ, rigidule membranaceæ, venis transversis crebris parallelis lineatæ. Variat pube paginæ inferioris foliolorum tenui canescente v. laxa subvelutina et nonnunquam rufescente; forma et numero foliolorum; inflorescentia brevi v. elongata, leguminis alis continuis v. (ovulis hinc inde abortientibus) inter semina subinterruptis, &c.

Hab. West Indies: Jamaica, Guadaloupe, St. Vincent's, St. Lucia, &c.; also in the Bahamas, *Herb. Hook.*; and Florida, *Rügel*, n. 155.

In flower, this plant is very near *Lonchocarpus*, and has much the aspect of the *L. Guatemalensis*, except in inflorescence, which is nearer that of the paniculate series of *Lonchocarpi*.

The winged-podded *Sesbanias* or *Daubentonias* have been occasionally published as *Piscidias*.

XVIII. MÜLLERA, *Linn.*Coublandia, *Aubl.*; Cyanobotrys, *Zucc.*

Flos *Lonchocarpi*. Legumen crassum, carnosum-suberosum, transverse subteres, indehiscens, inter semina sæpius constrictum et intus isthmis solidis interceptum. Semina ovoideo-subglobosa, vix compressa, hilo laterali.—Arbores habitu omnino *Lonchocarpi*, foliis sæpius pellucido-punctatis.

1. M. MONILIFORMIS (*Linn.*, *DC. Prod.* ii. p. 259), glabra, foliolis 5 parce pellucido-punctatis, pedicellis geminis, legumine moniliformi polyspermo v. abortu monospermo subgloboso.—*Miq. Stirp. Surin.* t. 4; *Coublandia frutescens*, *Aubl. Pl. Gui.* t. 356, et fr. in t. 300 sub *De-gueliæ* pictus.—Habitus, folia et inflorescentia *Lonchocarpi virgilioidis*. Foliola 2-3-pollicaria, punctis pellucidis iis *L. violacei* similibus notata, sed rarioribus et nonnunquam fere evanidis. Flores circa 9 lin. longi, pedicellis gracilibus 2-3 lin. longis subsessilibus. Legumen nunc subglobosum $\frac{3}{4}$ -1 poll. diametro, nunc quasi articulatum, monilibus globosis isthmis angustissimis separatis.

Hab. Tropical America, North Brazil; Cayenne, *Aublet, Martin*; Surinam, *Hostmann*, n. 350, *Leschenault*, &c.; British Guiana, *Rob. Schomburgk*, 2nd coll. n. 156, *Rich. Schomburgk*, n. 132, *Parker*, &c.; St. Vincent's, *Anderson*.

2. M. MEXICANA (glabra, foliolis 5-11 ovatis oblongisve acuminatis crebre pellucido-punctatis, pedicellis bifloris), legumine tereti-subcompresso subtoruloso.—*Cyanobotrys mexicana*, *Zucc. Pl. Nov. fasc. v.* p. 30. t. 5.—Legumen 1-2-pollicare, 1-3-spermum, glabrescens, læve, suturis non prominentibus.

Hab. Mexico, *Herb. Zuccarini*.

The flowering specimen which I examined in Zuccarini's herbarium was so precisely in every respect like some of those of *Lonchocarpus violaceus*, that I could scarcely believe them distinct. The staminal tube was quite entire, the upper stamen free at the base only, as in *Lonchocarpus*; the only fruit in the collection was detached, and evidently not gathered at the same time; and I might have suspected that they had been mismatched, but that Zuccarini had raised the plant, in the Munich garden, from the seeds.

XIX. EUCHRESTA, *Benn.*

Calyx campanulatus, postice gibbus, breviter 5-dentatus. Vexillum angustum. Carinæ petala apice dorso cohærentia. Stamina 10, vexillari soluto, cæteris connatis (at facile solvendis). Ovarium stipitatum, 1-2-ovulatum. Legumen stipitatum, ovoideum, chartaceum, fragile, indehiscens. Semen unicum, pendulum. Embryo rectus.

Species unica.

E. HORSFIELDII, *Benn. Pl. Jav. Rar.* p. 148, t. 31; *Andira Horsfieldii*, *Lesch., DC. Prod.* ii. p. 476. Frutex glaber v. vix in inflorescentia minute puberulus. Folia alterna, pinnata. Foliola 3–5, opposita cum impari distante, brevissime petiolulata, exstipellata, oblongo-elliptica, acuminata, 3–6-pollicaria, crassiuscula at vix coriacea, pallide virentia. Racemi axillares, simplices. Pedicelli solitarii, sparsi, 2–3 lin. longi. Bracteæ parvæ, angustæ. Bracteolæ inconspicuæ. Calyx $3\frac{1}{2}$ lin. longus, uti petala candidus, consistentia cerina. Petala calyceem duplo superantia, æquilonga et omnia anguste oblonga. Vexillum complicatum, basi in unguem longum angustatum. Ovarium longissime stipitatum, oblongum, glabrum. Stylus incurvus, filiformis, stigmatē parvo. Legumen “magnitudine *Pruni domestici sylvestris*, in tres laminas solubile, quarum exterior violascenti-nigra glaberrima nitida tenuis, intermedia (post macerationem) fungoso-cellulosa, intima lævigata tenuissima.”

Hab. Java, *Leschenault*, *Horsfield*, *Junghuhn*, &c.; also in North-East Formosa, *Wilford*.

XX. ANDIRA, *Lam.*

Calyx late campanulatus v. subturbinatus, truncatus v. breviter 5-dentatus. Petala carinalia libera, dorso imbricantia. Stamen vexillare liberum, cætera connata, v. rarius omnia connata vagina latere superiore fissa. Antheræ versatiles. Ovarium stipitatum v. rarius sessile, 2–4-rarius 1-ovulatum. Legumen drupaceum, ovoideum v. obovoideum, indehiscens, semine unico pendulo. Embryo rectus.—Arbores austro-Americanæ. Folia alterna, imparipinnata. Foliola opposita v. rarius alterna, sæpe stipellata. Flores paniculati, rosei v. violacei, suaveolentes, sessiles v. breviter pedicellati. Legumina in speciebus nonnullis in sicco magnitudine nucis juglandis, in aliis duplo majora dicuntur; quæ vidi verisimiliter exsiccatione contracta.

Sect. 1. *ARISTOBULIA*. Vexilli unguis calyce brevior. Stamina monadelphæ. Ovarium subsessile, pubescens. (Legumen ignotum. An hujus generis?)

1. *A. amazonum*. (Brasilia sept., Guiana.)

Sect. 2. *LUMBRICIDIA*. Vexilli unguis calycem subæquans v. superans. Stamina diadelpha $\frac{1}{2}$. Ovarium distincte v. longe stipitatum.

* *Ovario pubescente v. villosa*. (Species 6 priores inter se arcte affines.)

2. *A. stipulacea*. (Brasilia.)

3. *A. frondosa*. (Brasilia.)

4. *A. anthelmintica*. (Brasilia.)

5. *A. Pisonis*. (Brasilia.)

6. *A. fraxinifolia*. (Brasilia.)

7. *A. parvifolia*. (Brasilia.)

8. *A. cujabensis*. (Brasilia.)

9. *A. cubensis*. (Cuba.)

** *Ovario glabro v. pilis paucis ciliato.* (Species inter se arcte affines.)

10. *A. vermifuga.* (Brasilia.)
11. *A. paniculata.* (Brasilia.)
12. *A. retusa.* (Brasilia sept., Guiana.)
13. *A. laurifolia.* (Brasilia.)
14. *A. humilis.* (Brasilia.)
15. *A. nitida.* (Brasilia.)
16. *A. inermis.* (America calidior, Africa occid.)
17. *A. sapindoides.* (Ind. occid.)

Sect. 1. ARISTOBULIA.

1. *A. ? AMAZONUM* (*Mart. Benth. in Ann. Mus. Vind.* ii. p. 107, et in *Mart. Fl. Bras. Leg.* ined.), foliolis 9–15 alternis oblongis nitidis glabris v. subtus tenuissime puberulis, panicula simplici, floribus magnis, staminibus monadelphis, ovario subsessili sericeo.—*A. bracteosa*, Benth. in *Ann. Mus. Vind.* ii. p. 107; *Ormosia pacimonensis*, Spruce, Pl. exs. n. 3365.—Folia ampla, foliolis 3–4-pollicaribus. Panicula pedalis v. longior, subcanescens. Bracteæ quam in sequentibus multo majores, concavæ. Flores iis *Hymenolobii* subsimiles, 1–1¼-pollicares. *Hab.* North Brazil, also Cayenne, *Martin*; and Venezuela, on the Pacimone River, *Spruce*, n. 3345.

Sect. 2. LUMBRICIDIA.

2. *A. STIPULACEA* (*Benth. in Ann. Mus. Vind.* ii. p. 107, et in *Mart. Fl. Bras. Leg.* ined.), stipulis amplis persistentibus, foliolis 11–15 ovali-oblongis subtus puberulis, panicula puberula, bracteolis minutis caducissimis, ovario pubescente.—*Lumbricidia legalis*, Vell. Fl. Flum. vii. t. 105 (ex ic.).—Stipulæ subpollicares, latæ, cartilagineæ. Folia ampla, foliolis 3–4-pollicaribus, sæpius stipellatis. Panicula floribunda. Flores circa 8 lin. longi. Ovula 4.

Hab. Brazil, near Rio Janeiro.

β? *Bahiensis*, stipulis minoribus.

Hab. Brazil, near Bahia (*Blanchet*, n. 607).

3. *A. FRONDOSA* (*Mart., Benth. in Ann. Mus. Vind.* ii. p. 108, et in *Mart. Fl. Bras. Leg.* ined.), stipulis amplis persistentibus, foliolis 11–15 ovalibus subtus puberulis, panicula rufo-villosa, bracteolis lanceolatis calycis dimidium superantibus, ovario pubescente.—Foliola quam in præcedente latiora et magis coriacea. Flores majores. Ovula 4. An *A. stipulaceæ* varietas?

Hab. Brazil, on the sea-coast near Rio Janeiro.

4. *A. ANTHELMINTICA* (*Benth. in Ann. Mus. Vind.* ii. p. 108, et in *Mart. Fl. Bras. Leg.* ined.), stipulis lanceolatis caducis, foliolis 9–13 obovali-ellipticis oblongisve demum coriaceis supra glabris subtus molliter pubescentibus, paniculis brevibus rufo-tomentosis, bracteolis

minutis caducissimis, ovario pubescente.—*Lumbricidia anthelmia*, Vell. Fl. Flum. vii. t. 104.—Ab *A. stipulacea* differt pube, stipulis, floribus paullo minoribus, dentibus calycinis evidentioribus. Foliola $2\frac{1}{2}$ –3-pollicaria, in forma normali pleraque acuminata. Flores circa 7 lin. longi. Ovula 4.

Hab. Brazil, near Rio Janeiro.

β , *ormosioides*, foliolis plerisque obtusissimis retusisve.—*A. ormosioides*, Benth. in Ann. Mus. Vind. ii. p. 108.

Hab. Brazil, prov. Mattogrosso.

5. *A. PISONIS* (Mart., Benth. in Ann. Mus. Vind. ii. p. 108, et in Mart. Fl. Bras. Leg. ined.), stipulis minutis v. nullis, foliolis 5–9 ovalibus oblongisve coriaceis supra glabris subtus rufo-sericeis, panicula ferrugineo-tomentosa, bracteolis minutis caducissimis, ovario villosa.—Foliola coriacea *A. anthelminticæ* sed minora et pauciora. Ramuli floridi tenues ut in sequente, nec incrassati ut in præcedentibus. Flores *A. anthelminticæ*.

Hab. Brazil, prov. Minas Geraes and Bahia (Blanchet, n. 3672).

6. *A. FRAXINIFOLIA* (Benth. in Ann. Mus. Vind. ii. p. 108, et in Mart. Fl. Bras. Leg. ined.), stipulis minimis v. nullis, foliolis 9–11 oblongis acuminatis non coriaceis subtus pubescentibus v. demum glabratissimis, panicula foliis brevior laxa tomentella, bracteis bracteolisque minutis v. nullis, ovario villosa, stipite calyce multo brevior.—*A. rosea*, Mart., Benth. in Ann. Mus. Vind. ii. p. 108.—*A. præcedentibus* distinguitur ramis floridis tenuioribus, foliolis minoribus tenuioribus, floribus minoribus. Foliola pleraque 2–3-pollicaria, opaca et sæpe pallentia, subtus insigniter venosa. Flores vix 6 lineas excedunt. Ovula 4.

Hab. Brazil, prov. Rio Janeiro, Minas Geraes, and San Paolo, apparently frequent.

7. *A. PARVIFOLIA* (Mart., Benth. in Ann. Mus. Vind. ii. p. 108, et in Mart. Fl. Bras. Leg. ined.), stipulis subulatis v. nullis, foliolis sub-9 parvis ovalibus obtusis non coriaceis subtus pubescentibus v. demum glabratissimis, panicula brevi laxa tomentella, ovario villosa, stipite calyce vix brevior.—Foliola vix pollicaria et minime acuminata, cæterum *A. fraxinifoliæ* valde affinia.

Hab. Brazil, prov. Minas Geraes.

8. *A. ? CUJABENSIS* (Benth. in Mart. Fl. Bras. Leg. ined.), foliolis 5–9 ovatis basi subcordatis coriaceis supra glabris nitidis subtus laxa pubescentibus, paniculis ramosissimis rhachi tomentosa, floribus parvis confertis, calyce glabrescente, ovario pubescente biovulato.—Foliola pleraque $1\frac{1}{2}$ –2 poll. longa, $1-1\frac{1}{2}$ poll. lata. Panicula semipedalis, floribunda, floribus confertis vix 3 lin. longis.

Hab. Brazil, prov. Mattogrosso and Goyaz (Gardner, n. 3654).

The pod in this and the following species not having been seen, the genus must be considered as in some measure doubtful.

9. *A.?* *CUBENSIS*, sp. n., foliolis 9–13 ovalibus oblongisve obtusis v. breviter acuminatis coriaceis nitidis glabris, panicula floribunda fusco-tomentosa, floribus parvis sessilibus, calyce tomentoso, ovario breviter stipitato villosulo uniovulato.—Arbor primo intuitu formis nonnullis latifoliis *A. inermis* subsimilis, sed flores minores et ovarium distinctissimum. Flores circa 3 lin. longi, dense conferti, violacei. Calyx fusco-villosus, basi obtusus. Petala et stamina omnino generis. Ovarii stipes calyce subdimidio brevior.

Hab. Cuba, *Linden*, n. 2160.

10. *A. VERMIFUGA* (*Mart.*, *Benth.* in *Ann. Mus. Vind.* ii. p. 108, et in *Mart. Fl. Bras. Leg.* ined.), foliolis 9–11 subsessilibus late ovalibus obtusis retusisve basi subcordatis coriaceis subtus pubescentibus, panicula ampla, calycibus turbinatis tomentosis, ovario glabro.—*Geoffroya vermifuga* et *G. spinulosa*, *Mart. Reise*, p. 788; *Andira spinulosa*, *Mart.*, *Benth.* in *Ann. Mus. Vind.* ii. p. 108.—Folia ampla, foliolis crassis 3–4-pollicaribus, petiolulo brevissimo. Flores 7–8 lin. longi fere *A. anthelminticæ*, sed ovarium glabrum. Ovula 4.

Hab. Brazil, prov. Minas Geraes and Mattogrosso.

The relative dilatation of the petiole and prominence of the stipellæ, upon which the two supposed species were originally founded, prove to be very variable.

11. *A. PANICULATA* (*Benth.* in *Ann. Mus. Vind.* ii. p. 109, et in *Mart. Fl. Bras. Leg.* ined.), foliolis 11–13 petiolulatis oblongis v. ovali-oblongis obtusis retusisve vix coriaceis basi rotundatis cuneatisve supra puberulis subtus sericeo-puberulis villosisve, panicula ampla, calyce tomentoso basi acutato, ovario glabro.—Flores fere *A. vermifugæ*, folia iis *A. laurifoliæ* similiora sed foliola minus coriacea et utrinque pubescentia, pleraque 2–3 poll. longa, 1 poll. lata.

Hab. Brazil, prov. Goyaz and Ceara (*Gardner*, n. 1538).

12. *A. RETUSA* (*H. B. K. Nov. Gen. et Sp.* vi. p. 385 in adnot.), foliolis 9–11 petiolulatis oblongis obovatisve obtusis retusisve basi rotundatis coriaceis supra glabris nitidis subtus puberulis, panicula laxa, calyce tomentoso basi acutato, ovario glabro.—*Geoffroya retusa*, *Lam. Illustr.* t. 602, f. 2, *Poir. Dict.* viii. p. 182; *Geoffroya pubescens*, *Rich.* in *Act. Soc. Hist. Nat. Par.* p. 121.—Foliola vulgo 3-pollicaria, supra medium latiora, subtus quam in sequente magis reticulata et plus minus pubescentia. Flores quam in præcedentibus minores, majores tamen quam in *A. inermi*, circa 6 lin. longi.

Hab. Tropical America: Cayenne, *Martin* and others; British Guiana, *Rob. Schomburgk*, 2nd coll. n. 512; *Rich. Schomburgk*, n. 780.

β, oblonga, foliolis apice minus dilatatis, nonnunquam brevissime et obtuse subacuminatis.—*A. oblonga*, *Benth.* in *Pl. Spruce* exs.

Hab. Tropical America: North Brazil, *Spruce*; prov. Piauh, *Gardner*, n. 2552; British Guiana, *Rob. Schomburgk*, 1st coll. n. 587, 2nd coll. n. 234, *Rich. Schomburgk*, n. 327.

In determining Schomburgk's plants I had formerly considered this as the same as the southern *A. laurifolia*; and afterwards having many more specimens before me from various sources, finding the leaflets always pubescent underneath, more reticulate, and rather differently shaped, I thought it might be a distinct species, which I named *A. oblonga* in Spruce's distribution. I now see, however, that it passes too gradually into the old *A. retusa* to be considered as more than a variety of it.

13. *A. LAURIFOLIA* (Benth. in *Ann. Mus. Vind.* ii. p. 109, et in *Mart. Fl. Bras. Leg.* ined.), foliolis 9–17 oblongis v. ovato-oblongis obtusis retusisve basi rotundatis petiolulatis coriaceis glabris supra nitidis, panicula laxa, calyce tomentoso basi acutato, ovario glabro.—Foliola 3–4-pollicaria, fere a basi apicem versus leviter angustata, at apice semper obtusa et basi rotundata, rigide coriacea. Panicula quam in *A. inermi* laxior, floribus majoribus, vulgo circa 6 lin. longis, calyce 3 lin. longo, magnitudine tamen interdum variant.

Hab. Brazil, common in Minas Geraes, also prov. Pernambuco (*Gardner*, n. 2816).

This may possibly prove to be a variety of *A. retusa*.

14. *A. HUMILIS* (Mart., Benth. in *Ann. Mus. Vind.* ii. p. 109, et in *Mart. Fl. Bras. Leg.* ined.), foliolis 9–11 (rarissime 7 v. 13) oblongis obtusis retusisve basi rotundatis petiolulatis coriaceis glabris nitidis, panicula laxa brevi, calyce glabrato basi acutiusculo, ovario glabro.—*A. pauciflora*, Benth. in *Ann. Mus. Vind. l.c.*

Hab. Brazil, prov. Minas Geraes.

Perhaps a variety of *A. laurifolia*, but the almost or quite glabrous dark-coloured calyces give it a very different aspect.

15. *A. NITIDA* (Mart., Benth. in *Ann. Mus. Vind.* ii. p. 109, et in *Mart. Fl. Bras. Leg.* ined.), foliolis 5–9 ovali-oblongis acuminatis glabris coriaceis nitidis, panicula laxa, calyce brevi glabro basi obtusiusculo, ovario glabro.

Hab. Brazil, near Bahia.

Differs from *A. inermis* as the *A. humilis* from the *A. laurifolia*, by the glabrous calyx. It is said, also, to be only a shrub, or very small tree.

16. *A. INERMIS* (H. B. K. *Nov. Gen. et Sp.* vi. p. 385 in adnot.), foliolis 9–13 oblongis acuminatis glabris coriaceis supra nitidulis, panicula floribunda, floribus subsessilibus, calyce brevi tomentoso basi obtuso, ovario glabro v. vix ciliato.—*Geoffroya inermis*, Linn.; *Andira racemosa*, Lam. Dict. i. p. 171, et Illustr. t. 604, f. 1; *A. grandiflora*, Guill. et Perr. Fl. Seneg. i. p. 254; *A. acuminata*, Benth. in *Ann. Mus. Vind.* ii. p. 109.—Arbor procerissima, ramis frondosis, pulcherrime florens. Foliola pleraque 3 poll. longa, 1 poll. lata, maxima 4-pollicaria, terminale cujusve folii sæpe brevius et latius, concoloria, costa subtus

prominente, venis tenuibus. Paniculæ pyramidatae, 6–10-pollicares, supra folia ultima sessiles. Flores rosei, variant a 5 ad 6 lineas longi. Calyx circa 2 lin. Ovarii stipes e calyce exsertus. Ovula 3–4, sed jam sub anthesi 2 v. 3 minima sunt et subabortiva.

Hab. Tropical America and West Tropical Africa, very abundant in the West Indies, Central America, Guiana, Venezuela, north Brazil, and eastern Peru (Mexico, *Jurgensen*, n. 64; Panama, *Cuming*, n. 1625; Trinidad, *Sieber*, n. 47; Surinam, *Hostmann*, n. 461 & 669; Cuyaba, *Mart. Hb. Fl. Bras.* n. 1157; Tarapoto, *Spruce*, n. 4115, etc.).

The Brazilian and West African specimens are generally rather larger-flowered and stiffer-leaved than those from Guiana, the West Indies, and Central America; but in the very large number of specimens from numerous collectors which I have compared, I can find no tangible characters nor constant size in the flowers to separate them even into marked varieties.

β, *Riedeli*, Benth. in *Mart. Fl. Bras. Leg. ined.*, foliolis subtus puberulis.

Hab. On the Rio Coxim, in Brazil, *Riedel*. The two specimens are very poor and unsatisfactory.

17? *A. SAPINDOIDES*, foliolis 9–13 oblongis acuminatis glabris coriaceis supra nitidulis, panícula laxa, floribus distincte pedicellatis, calyce brevi tomentoso basi acutiusculo, ovario glabro v. leviter ciliato.—*Pterocarpus sapindoides*, DC. *Prod.* ii. p. 419.

Hab. West Indies; Dominica, *Herb. DC.*, *Imray*; Antigua, *Wulfschnagel*.

I have considerable doubts whether this may not prove to be only a well-marked variety of *A. inermis*; but the flowers are considerably larger, distinctly pedicellate with a differently shaped calyx, and I have as yet seen no intermediate specimens. Dr. Grisebach may probably be enabled, from better materials, to clear up these doubts, in the 'West Indian Flora,' which he is preparing with so much care and ability.

XXI. GEOFFROYA.

Calyx turbinato-campanulatus, incurvus, distincte 5-dentatus (v. semi-4-fidus?) dentibus summis alte connatis. Petala carinalia libera, dorso imbricantia. Stamina monadelphæ v. vexillari soluto diadelphæ, vagina latere superiore fissa. Antheræ versatiles. Ovarium sessile v. breviter stipitatum, 3–4-ovulatum. Legumen drupaceum, ovoideum v. obovoideum (indehiscens?), semine unico pendulo. Embryo rectus.—Arborescens austro-Americana. Folia alterna, imparipinnata. Foliola alterna v. subopposita, stipellis raro conspicuis. Flores simpliciter racemosi, flavi, sæpissime foetidi.

1. *G. SPINOSA* (*Linna.*, DC. *Prod.* ii. p. 476 excl. syn. *Morægr.*), trunco spinis subulatis armato, foliolis 13–15 oblongis obtusis.—

"Flores pedicellati, simpliciter racemosi, sordide flavescentes, foetidi."

Hab. New Granada, near Carthagena, *Jacquin*.

I have never seen this plant ; nor can I hear of the existence of any specimen in England, Paris, or Geneva.

2. *G. SIEBERI*, sp. n., foliis 9–11 ovalibus oblongisve obtusis retusisve glabris subtus pallidis, racemis fusco-tomentoso-pubescentibus, vexillo glabro, ovario brevissime stipitato pubescente.—Ramuli et folia glabra. Petioli communes 4–6-pollicares. Foliola $1\frac{1}{2}$ –2 poll. longa, $1-1\frac{1}{4}$ poll. lata, apice basique rotundata et summo apice sæpius emarginata. Pubes racemorum densa et minus appressa quam in *G. discolor*. Flores 10–11 lin. longi. Vexillum ample orbiculatum, basi in unguem calyce multo breviorum contractum, glaberrimum. Alæ et carina breviores. Stamina monadelpha. Ovarii stipes distinctus etsi brevis. Ovula 4.

Hab. Trinidad, *Sieber*, n. 313.

I have only seen a single specimen in DeCandolle's herbarium.

3. *G. DISCOLOR* (*Benth. in Hook. Journ. Bot.* ii. p. 69), foliis 7–9 oblique ovatis oblongisve acuminatis v. obtusiusculis glabris subtus canescentibus, racemis ferrugineo-tomentosis, vexillo pubescente, ovario sessili tomentoso.—Ramuli et petioli juniores ferruginei, adulti glabrati. Folia adulta pedalia, foliis 2–3-pollicaribus basi sæpius valde obliquis. Racemi et calyces tomento brevi denso ferruginei. Bractæ ovatæ, concavæ.

Hab. Cayenne, *Martin*.

4. *G. SUPERBA* (*Humb. et Bonpl. Pl. Æq.* ii. p. 69, t. 100), foliis 13–25 obovali-oblongis obtusis retusisve pilosulis glabratissive subtus lineato-venosis, racemis tomentellis, vexillo glabro, ovario sessili tomentoso.—*G. Bredemeyeri*, H. B. K. Nov. Gen. et Sp. vi. p. 379 ; *Robinia striata*, Willd. Spec. iii. p. 1132.—A præcedentibus facile distincta foliis parvis numerosis lineatis, vulgo circiter 15 in folio 3–4-pollicari, singula 8–10 lin. longa v. raro pollice paullo longiora. Racemi folia subæquant. Bractæ ovatæ, membranaceæ, caducissimæ. Flores circa 5 lin. longi, lutei, plus minus graveolentes, nunc foetidissimi. Ovula 4. Legumen omnino *Andiræ*, magnitudine nucis juglandis.

Hab. Tropical America : Brazil, frequent in the provinces of Bahia, Pernambuco, Alagoas, and Ceara (*Blanchet*, n. 2650 ; *Gardner*, n. 964, 1415, 1911), and in Venezuela.

XXII. DIPTERYX.

Coumarouna et *Taralea*, *Aubl.*

Calycis tubus brevis ; laciniae 2 summæ maximæ, alæformes, crassiusculæ, florem in alabastro includentes, 3 inferiores in labium inferius minimum coalitæ. Petala ad marginem tubi inserta. Vexillum latum, emarginato-bifidum. Alæ apice oblique bifidæ. Petala carinalia libera v. dorso apice leviter cohærentia. Stamina 10, monadelpha, vagina latere superiore fissæ.

Antheræ versatiles, *alternæ sæpe minores v. nonnullæ cassæ v. abortientes*. *Ovarium stipitatum*, *ovulo unico pendulo*. *Legumen drupaceum, ovoideum, indehiscens, monospermum*. *Semen pendulum, embryo fere recto*.—*Arbores austro-Americanæ*. *Foliola alterna v. opposita, subabrupte pin-nata*. *Foliola opposita v. alterna, coriacea*. *Paniculæ terminales, flori-bundæ*. *Flores violacei v. rosei*.

Sect. 1. COUMAROUNA. *Folia alterna*. *Ovarium glabrum, basi longe attenuatum*.

1. *D. rosea*. (Brasilia sept.)
2. *D. odorata*. (Brasilia sept., Guiana.)
3. *D. tetraphylla*. (Brasilia sept.)
4. *D. alata*. (Brasilia.)

Sect. 2. TARALEA. *Folia opposita v. rarius alterna*. *Ovarium tomen-tosum, brevissime stipitatum, superne in stylum attenuatum*.

5. *D. oppositifolia*. (America trop.)
6. *D. nudipes*. (Brasilia sept.)
7. *D. reticulata*. (Guiana.)
8. *D. crassifolia*. (Guiana.)

Sect. 1. COUMAROUNA.

1. *D. ROSEA* (*Spruce, Benth. in Mart. Fl. Bras. Leg. ined.*), *foliis alternis, petiolo alato vix acuminato, foliolis 6-8 alternis ample ob-longis impunctatis, panicula calycibusque tomentellis, floribus magnis, antheris omnibus fertilibus, ovario glabro*.—A *D. odorata* differt imprimis floribus fere duplo majoribus. *Calyx crassus, lobis summis 10 lin. longis 4 lin. latis*.

Hab. North Brazil (*Spruce, n. 2096*).

2. *D. ODORATA* (*Willd., DC. Prod. ii. p. 477*), *foliis alternis, petiolo alato longe acuminato, foliolis 6-8 alternis amplis oblongis impunc-tatis, panicula calycibusque rufo-tomentellis, antheris fertilibus 5-8 (rarius 10?), ovario glabro*.—*Coumarouna odorata*, *Aubl. Pl. Gui. ii. p. 740, t. 296*.—*Petiolus ultra foliola ultima productus in acumen sæpe pollicare. Foliola 5-8-pollicaria. Calycis lacinia summæ 5 lin. longæ. Petala iis breviora. Legumen ovoideo-oblongum, compres-suseculum, 2-2½-pollicare, sarcocarpio filamentoso-carnoso, endocarpio lignoso*.

Hab. Cayenne, *Martin*; and North Brazil.

3. *D. TETRAPHYLLA* (*Spruce, Benth. in Mart. Fl. Bras. Leg. ined.*), *foliis alternis, petiolo complanato subalato longe acuminato, foliolis 4 oppositis ample oblongis impunctatis, panicula calycibusque rufo-tomentellis, ovario glabro*.—*D. odorata* valde affinis, differt imprimis foliolis (teste *Spruceo*, constanter) 4-nis et oppositis.

Hab. North Brazil (*Spruce, n. 1824*).

4. *D. ALATA* (*Vog. Linnæa*, xi. p. 383), foliis alternis, petiolo alato acuminato, foliolis 6–10 plerisque alternis ovatis oblongisve pellucido-punctatis, panicula tomentella, calycibus glabriusculis pellucido-punctatis, ovario glabro.—*D. pterota*, Mart., Benth. in *Ann. Mus. Vind.* ii. p. 110.—Foliola 3–5-pollicaria, minus coriacea quam in *D. odorata*. Calycis laciniae summæ 3 lin. longæ.

Hab. Brazil, prov. Minas Geraes, Goyaz, and Mattogrosso.

Sect. 2. TARALEA.

5. *D. OPPOSITIFOLIA* (*Willd., DC. Prod.* ii. p. 478), foliis oppositis v. ternatim verticillatis, petiolo applanato aptero, foliolis ovali-oblongis acuminatis tenuiter venosis, panicula calycibusque canescenti-puberulis, ovario tomentoso stipite brevissimo.—*Taralea oppositifolia*, Aubl. *Pl. Gui.* ii. p. 745, t. 298; *D. applanata*, Benth. in *Kew Journ. Bot.* ii. p. 234.—Foliola ut in sequentibus sæpius 6; variant in aliis speciminibus 4–6 poll. longa, in aliis 3–4 poll.; venæ tenues, 2–3 majores ad utrumque latus costæ ad basin folii approximatae. Panicula ampla. Flores violacei v. rosei. Calycis laciniae summæ 4 lin. longæ. Drupa fere *D. odorata*.

Hab. Tropical America: North Brazil, Cayenne, *Martin*; British Guiana, *Rob. Schomburgk*, 1st coll. n. 559.

β, *parviflora*.—Calycis laciniae summæ vix 3 lin. longæ.—*D. parviflora*, Spruce *Pl. exs.*

Hab. North Brazil and Venezuela, on the Rio Uaupès (*Spruce*, n. 2622).

6. *D. NUDIPES* (*Tul. Arch. Mus. Par.* iv. p. 100), foliis alternis, petiolo aptero applanato, foliolis ovali-oblongis longe acuminatis præter costam subaveniis, panicula canescente, ovario tomentoso, stipite brevissimo.—*Swartzia coriacea*, Desv. in *Ann. Sc. Nat. Par.* 1 ser. ix. p. 424.—Valde affinis *D. oppositifolia*, differt imprimis foliis alternis; foliola etiam magis coriacea. Flores ut in illa variant magnitudine.

Hab. North Brazil, *Herb. Mus. Par.*; on the Rio Negro in North Brazil and Venezuela, *Spruce*, n. 1799 and 3692 (distributed by mistake as the *D. applanata*, which has opposite leaves and belongs to the preceding species).

7. *D. RETICULATA* (*Benth. in Kew Journ. Bot.* ii. p. 235), foliis oppositis alternisve, petiolo complanato aptero, foliolis ovatis obtusis emarginatis subæquilateris coriaceis glaberrimis eleganter reticulatis, bracteolis coloratis calyce majoribus deciduis, calyce glabriusculo, ovario tomentoso stipite brevissimo.—Foliola 2–2½-pollicaria, 1½ poll. lata, rigidula, subtus pallida, apice nonnunquam brevissime et retuso-acuminata. Calycis laciniae summæ circa 3 lin. longæ, tenues, coloratae.

Hab. British Guiana, *Rob. Schomburgk*, 2nd coll. n. 606, *Rich. Schomburgk*, n. 951.

8. *D. CRASSIFOLIA* (Benth. in *Kew Journ. Bot.* ii. p. 235), foliis oppositis, petiolo anguste marginato, foliolis ovatis v. ovali-oblongis subacuminatis crasse coriaceis supra glabris subtus canescentibus, panicula canescente, calycibus puberulis, ovario tomentoso stipite brevissimo. —Foliola 4-5 poll. longa, 2-3 poll. lata, margine subrecurva. Calycis lacinie summæ circa 3 lin. longæ. Legumen junius in stipitem brevissimum attenuatum.

Hab. British Guiana, *Rob. Schomburgk* (n. 25 of a small set of almost single specimens gathered in his last expedition).

Species insufficiently known.

D. oleifera, Benth. in *Kew Journ. Bot.* ii. p. 235, the *Eboe tree* of the Mosquito shore, of which I saw only a fruit and a flower, appeared to be distinct from all the more southern species in the remarkably glandular calyx.

XXIII. PTERODON, *Vog.*

Commilobium, *Benth.*

Flos *Dipterygis* excepto calyce tenuiore, laciniiis summis membranaceis subpetaloideis. Antheræ uniformes. Ovarium sæpius stipitatum. Legumen complanato-drupaceum, ovale v. oblongum, subobliquum, sarcocarpio tenui oleaginoso ab endocarpio maturitate secedente; endocarpium medio leviter incrassatum et lignosum, cellulis olea balsamea repletis. Semen *Dipterygis* nisi quod magis compressum. —Arbores austro-Americanæ. Folia alterna abrupte pinnata, petiolo tenui aristula terminato. Foliola subopposita v. alterna, ultimo sæpe pseudoterminali. Flores rosei v. albi in paniculam terminalem dispositi. Species inter se valde affines.

1. *P. EMARGINATUS* (*Vog. Linnæa*, xi. p. 384), foliolis subseptenis ovali-oblongis emarginatis glabris, calycis alis glabris impunctatis. —Foliola circiter pollicaria.

Hab. Brazil, prov. Minas Geraes, *Sello*.

I have not seen any specimens; but from Vogel's description (unless there is a misprint), it differs from all others in having only 7 leaflets; otherwise I should have considered it the same as the following.

2. *P. POLYGALÆFLORUS* (Benth. in *Mart. Fl. Bras. Leg.* ined.), foliolis 15-19 ovatis v. ovato-lanceolatis retusis glabris, calycis alis glabris impunctatis. —*Commilobium polygalæflorum*, Benth. in *Ann. Mus. Vind.* ii. p. 111. —Foliola 9-18 lin. longa, 5-9 lin. lata, chartacea, venis crebris subparallelis. Panicula semipedalis laxa, floribunda. Flores rosei. Calycis alæ (lacinie summæ) 6 lin. longæ, 4 lin. latæ, petaloideæ. Legumen 2½ poll. longum, 1½ poll. latum.

Hab. Brazil, frequent in Minas Geraes, Goyaz, and Piahy (*Gardner*, n. 2522).

3. *P. PUBESCENS* (Benth. in *Mart. Fl. Bras. Leg.* ined.), foliolis 20-36 ovato-oblongis subtus petiolis paniculisque pubescentibus,

calycis alis glabris glanduloso-punctatis.—*Commilobium pubescens*, Benth. in Ann. Mus. Vind. ii. p. 111.—Foliola quam in præcedente sæpius angustiora. Flores paullo minores. Legumen minus et angustius.

Hab. Brazil, prov. Minas Geraes, Goyaz, and Mattogrosso, and in Bolivia, prov. Chiquitos, *D'Orbigny*, n. 857.

4. *P. ABRUPTUS* (*Benth. in Mart. Fl. Bras. Leg. ined.*), pubescens, foliolis 10–14 late ovalibus emarginatis, calycis alis pubescentibus vix punctatis.—*Commilobium abruptum*, Moric. Pl. Nouv. Amer. p. 98, t. 62.—Foliola majora 9 lin. longa, 6 lin. lata, supra pube brevi conspersa, subtus uti rami et paniculæ molliter pubescentia. Flores *P. polygalæflori*.

Hab. Brazil, prov. Bahia (*Blanchet*, n. 2805).

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